OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

PA-Score

PA ScoreSheets

Site Name: GNB, Inc.
CERCLIS ID No.: TXD007331879
Street Address: 1880 Valley View Lane
City/State/Zip: Farmers Branch, TX 75234

Investigator: S. Bret Kendrick
Agency/Organization: ICF Technology
Street Address: 750 N. St. Paul, Suite 700
City/State: Dallas, TX

Date: Feb. 1993

OMB Approval Number: 2050-0095
Approved for Use Through: 4/95

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

1. General Site Information

Name:		Street Address:			
GNB, Inc.		1880 Valley View Lane			
City:	State:	Zip Code:	County:	Co. Code:	Cong. Dist:
Farmers Branch	TX	75234	Dallas		3
Latitude: Longitude:	Approx. Area of Site:	Status of Site:			
35° 55' 12.0" 96° 54' 58.0"	10 acres	Active			

2. Owner/Operator Information

Owner:			Operator:		
GNB, Inc.			GNB, Inc.		
Street Address:			Street Address:		
1880 Valley View Lane					
City:			City:		
Farmers Branch					
State:	Zip Code:	Telephone:	State:	Zip Code:	Telephone:
TX	75234	214-243-1011	TX	75234	214-243-1011
Type of Ownership:			How Initially Identified:		
Private			RCRA/CERCLA Notification		

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

3. Site Evaluator Information

Name of Evaluator:	Agency/Organization:	Date Prepared:
S. Bret Kendrick	ICF Technology	Feb. 1993

Street Address:	City:	State:
750 N. St. Paul, Suite 700	Dallas	TX

Name of EPA or State Agency Contact:	Telephone:
Lonnie Ross	(214) 655-6665

Street Address:	City:	State:
1445 Ross Ave., Allied Bank Bldg.	Dallas	TX

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: No	CERCLIS Recommendation: Higher Priority SI	Signature:
Date:	Date:	Name:
		Position:

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site:	Site Setting:	Years of Operation:
Industrial	Suburban	Beginning Year: 1971 Ending Year: 1993

Type of Site Operations:
- Manufacturing
  - Other Manufacturing
- RCRA
  - Large Quantity Generator

Waste Generated:
Onsite

Waste Deposition Authorized By: Present Owner

Waste Accessible to the Public
No

Distance to Nearest Dwelling, School, or Workplace:
2000 Feet

6. Waste Characteristics Information

Source Type	Quantity	Tier
Surface impoundment	3.61e+03 cu yds	V
Surface impoundment	3.61e+03 cu yds	V
Surface impoundment	1.27e+05 cu ft	V

Tier Legend
- C = Constituent
- W = Wastestream
- V = Volume
- A = Area

General Types of Waste:
- Metals

Physical State of Waste as Deposited
- Sludge

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
No

Type of Ground Water Wells Within 4 Miles:
None

Depth to Shallowest Aquifer:
5 Feet

Karst Terrain/Aquifer Present:
No

Is There a Suspected Release to Ground Water:
Yes

Have Primary Target Drinking Water Wells Been Identified: No

Nearest Designated Wellhead Protection Area:
None within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - 1/4 Mile	0
>1/4 - 1/2 Mile	0
>1/2 - 1 Mile	0
>1 - 2 Miles	0
>2 - 3 Miles	0
>3 - 4 Miles	0
Total	0

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

8. Surface Water Pathway — Part 1 of 4

Type of Surface Water Draining Site and 15 Miles Downstream:	Shortest Overland Distance From Any Source to Surface Water:
Stream River	3000 Feet 0.6 Miles
Is there a Suspected Release to Surface Water: No	Site is Located in: Annual - 10 yr floodplain

8. Surface Water Pathway — Part 2 of 4

Drinking Water Intakes Along the Surface Water Migration Path: No

Have Primary Target Drinking Water Intakes Been Identified: No

Secondary Target Drinking Water Intakes:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

8. Surface Water Pathway — Part 3 of 4

Fisheries Located Along the Surface Water Migration Path: Yes

Have Primary Target Fisheries Been Identified: No

Secondary Target Fisheries:

Fishery Name	Water Body Type/Flow(cfs)
Elm Fork	moderate-large stream/ >100-1000
Trinity	large stream/river/ >1000-10000

8. Surface Water Pathway — Part 4 of 4

Wetlands Located Along the Surface Water Migration Path? (y/n) No

Have Primary Target Wetlands Been Identified? (y/n) No

Secondary Target Wetlands:
None

Other Sensitive Environments Along the Surface Water Migration Path: No

Have Primary Target Sensitive Environments Been Identified: No

Secondary Target Sensitive Environments:
None

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT FORM	IDENTIFICATION	
	State: TX	CERCLIS Number: TXD007331879
	CERCLIS Discovery Date:	

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: No	Number of Workers Onsite: 101 - 1000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: No

10. Air Pathway

Total Population on or Within:	
Onsite	340
0 - 1/4 Mile	5
>1/4 - 1/2 Mile	33
>1/2 - 1 Mile	95
>1 - 2 Miles	9404
>2 - 3 Miles	29788
>3 - 4 Miles	28342
Total	68007

Is There a Suspected Release to Air: No

Wetlands Located Within 4 Miles of the Site: No

Other Sensitive Environments Located Within 4 Miles of the Site: No

Sensitive Environments Within 1/2 Mile of the Site:
None

WASTE CHARACTERISTICS

Waste Characteristics (WC) Calculations:

1 SWMU 5 and 6	Surface impoundment	Ref: 1	WQ value	maximum
Volume	3.61E+03 cu yds		1.44E+03	1.44E+03

SWMU 5 and SWMU 6 were hydraulically connected and together basically formed an inverted, truncated pyramid, approximately 120 feet x 120 feet at the base, by 12 feet deep, with side walls having a 33% slope. The volume of this pair of impoundments was estimated to be 3,612 cubic yards (Rer. 1, p. 37).
Ref: 1

2 SWMU 7 and 8	Surface impoundment	Ref: 1	WQ value	maximum
Volume	3.61E+03 cu yds		1.44E+03	1.44E+03

SWMU 7 and SWMU 8 were hydraulically connected and together formed basically an inverted, truncated pyramid, approximately 120 feet x 120 feet at the base, by 12 feet deep, with side walls having a 33% slope. The volume of this pair of impoundments was estimated to be approximately 3,612 cubic yards (Ref. 1, p. 37).
Ref: 1

3 SWMU 9	Surface impoundment	Ref: 1	WQ value	maximum
Volume	1.27E+05 cu ft		1.87E+03	1.87E+03

Volume of the dry waste pit was calculated by using a scale drawing of the site. The scale of the drawing was 1"=300'. The length of the impoundment was measured to be 15/16". The length in feet was then calculated to be 281.25' by the following formula:

15/16 x 300 = 281.25

The width was calculated in a similar manner. The width was measured to be 6/16". The width in feet was calculated by the following formula:

6/16 x 300 = 112.5

Ref: 1, 21

WQ total 4.76E+03

** Only First WC Page Is Printed **

Waste Characteristics Score: WC = 32

Ground Water Pathway Criteria List Suspected Release	
Are sources poorly contained? (y/n/u)	Y
Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)? (y/n/u)	Y
Is waste quantity particularly large? (y/n/u)	Y
Is precipitation heavy? (y/n/u)	N
Is the infiltration rate high? (y/n/u)	Y
Is the site located in an area of karst terrain? (y/n)	N
Is the subsurface highly permeable or conductive? (y/n/u)	Y
Is drinking water drawn from a shallow aquifer? (y/n/u)	N
Are suspected contaminants highly mobile in ground water? (y/n/u)	N
Does analytical or circumstantial evidence suggest ground water contamination? (y/n/u)	Y
Other criteria? (y/n)	N
SUSPECTED RELEASE? (y/n)	Y

Summarize the rationale for Suspected Release:

GNB manufactures automotive batteries. The facility operated 4 settling ponds and a dry waste pit from 1972 to 1985. The settling ponds received treated wastewaters from neutralization pits. The slurry resulted from the neutralization of sulfuric acid and contained high levels of lead. The solids contained within the slurry were allowed to settle to the bottom of the impoundments, and the wastewater was eventually discharged to the sanitary sewer (Ref. 1, p. 37). Lead containing sludge was chemically fixed and transferred to the dry waste pit prior to eventual off-site disposal (Ref. 1, p. 37). None of the pits were lined (Ref. 1, pp. 37, 52). See Attachment A.

Ref: 1

ATTACHMENT 1

ANALYTICAL RESULTS FOR GROUND WATER SAMPLING CONDUCTED ON MARCH 9, 1990*

Contaminant	Ground Water Monitoring Wells				
	MW-1A	MW-2A	MW-3A	MW-S	MW-N
Lead	0.005	<0.005	0.006	<0.005	<0.005
Sulfate	468	960	298	568	476

* All concentrations reported in parts per million (ppm)(Ref. 11).

Ground Water Pathway Criteria List
Primary Targets

Is any drinking water well nearby? (y/n/u)	N
Has any nearby drinking water well been closed? (y/n/u)	N
Has any nearby drinking water well user reported foul-testing or foul-smelling water? (y/n/u)	N
Does any nearby well have a large drawdown/high production rate? (y/n/u)	N
Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance? (y/n/u)	N
Does analytical or circumstantial evidence suggest contamination at a drinking water well? (y/n/u)	N
Does any drinking water well warrant sampling? (y/n/u)	N
Other criteria? (y/n)	N
PRIMARY TARGET(S) IDENTIFIED? (y/n)	N

Summarize the rationale for Primary Targets:

Farmers Branch, like most suburbs of Dallas, purchases its water directly from the City of Dallas. The City of Dallas receives its water from man-made reservoirs and lakes. Dallas does not withdraw water directly from aquifers in the area or directly from rivers (Ref. 1, pp. 21, 22; Ref. 12)

Ref: 1, 12

GROUND WATER PATHWAY SCORESHEETS

Pathway Characteristics

		Ref.
Do you suspect a release? (y/n)	Yes	
Is the site located in karst terrain? (y/n)	No	1
Depth to aquifer (feet):	5	1
Distance to the nearest drinking water well (feet):	25000	1

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	550		
2. NO SUSPECTED RELEASE		0	
LR =	550	0	

Targets

TARGETS	Suspected Release	No Suspected Release	References
3. PRIMARY TARGET POPULATION 0 person(s)	0		
4. SECONDARY TARGET POPULATION Are any wells part of a blended system? (y/n) N	0	0	
5. NEAREST WELL	0	0	
6. WELLHEAD PROTECTION AREA None within 4 Miles	0	0	
7. RESOURCES	5	0	
T =	5	0	

WASTE CHARACTERISTICS

WC =	32	0

GROUND WATER PATHWAY SCORE:	1

Ground Water Target Populations

Primary Target Population Drinking Water Well ID	Dist. (miles)	Population Served	Reference	Value
None				
*** Note : Maximum of 5 Wells Are Printed ***			Total	

Secondary Target Population Distance Categories	Population Served	Reference	Value
0 to 1/4 mile	0	1	0
Greater than 1/4 to 1/2 mile	0	1	0
Greater than 1/2 to 1 mile	0	1	0
Greater than 1 to 2 miles	0	1	0
Greater than 2 to 3 miles	0	1	0
Greater than 3 to 4 miles	0	1	0
		Total	0

Apportionment Documentation for a Blended System

Farmers Branch purchases its water directly from the City of Dallas. The City of Dallas receives its water from man-made reservoirs and lakes. Dallas does not withdraw water directly from aquifers in the area or from rivers (Ref. 1, pp. 21, 22; Ref. 12).

Ref: 1, 12

Surface Water Pathway Criteria List Suspected Release	
Is surface water nearby? (y/n/u)	Y
Is waste quantity particularly large? (y/n/u)	Y
Is the drainage area large? (y/n/u)	Y
Is rainfall heavy? (y/n/u)	Y
Is the infiltration rate low? (y/n/u)	N
Are sources poorly contained or prone to runoff or flooding? (y/n/u)	Y
Is a runoff route well defined(e.g.ditch/channel to surf.water)? (y/n/u)	N
Is vegetation stressed along the probable runoff path? (y/n/u)	N
Are sediments or water unnaturally discolored? (y/n/u)	N
Is wildlife unnaturally absent? (y/n/u)	N
Has deposition of waste into surface water been observed? (y/n/u)	N
Is ground water discharge to surface water likely? (y/n/u)	U
Does analytical/circumstantial evidence suggest S.W. contam? (y/n/u)	N
Other criteria? (y/n)	N
SUSPECTED RELEASE? (y/n)	N

Summarize the rationale for Suspected Release:

GNB manufactures automotive batteries. The sources consisted of 4 settling ponds and 1 dry waste pit which were operated from 1972 to 1985 (Ref. 1, p. 18). The sources have since been excavated and backfilled (Ref. 20). Rawhide Creek is located approximately 3,000 feet south-southeast of the site and is considered the PPE. There is no defined drainage channel leading to the PPE. Surface runoff is believed to migrate to the PPE by overland flow.

During the time of operation of the impoundments, no documented case of an overflow or a surface water release was recorded (Ref. 1, p. 41).

Ref: 1, 20

Surface Water Pathway Criteria List
Primary Targets

Is any target nearby? (y/n/u) If yes: Y
N Drinking water intake
Y Fishery
U Sensitive environment

Has any intake, fishery, or recreational area been closed? (y/n/u) N

Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target? (y/n/u) N

Does any target warrant sampling? (y/n/u) If yes: N
N Drinking water intake
N Fishery
N Sensitive environment

Other criteria? (y/n) N

PRIMARY INTAKE(S) IDENTIFIED? (y/n) N

Summarize the rationale for Primary Intakes:

The City of Farmers Branch purchases its water directly from the City of Dallas. The City of Dallas receives its water from man-made reservoirs and lakes (Ref. 1, pp. 21, 22). No surface water intakes were identified within the 15-mile in-water segment.

Ref: 1

continued -------

continued -------

Other criteria? (y/n) N

PRIMARY FISHERY(IES) IDENTIFIED? (y/n) N

Summarize the rationale for Primary Fisheries:

The PPE is Rawhide Creek which is 3,000 feet south-southeast of the site. It is not known if the creek is a fishery. Rawhide Creek flows approximately 1.57 miles before it enters the Elm Fork of the Trinity River (Ref. 17). The Elm Fork of the Trinity River is a designated fishery (Ref. 14). The Elm Fork of the Trinity River flows approximately 11.24 miles before it enters the Trinity River (Ref. 17). The Trinity River is a fishery (Ref. 14).

Ref: 14, 17

Other criteria? (y/n) N

PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED? (y/n) N

Summarize the rationale for Primary Sensitive Environments:

No sensitive environments were identified along the 15-mile in-water segment.

SURFACE WATER PATHWAY SCORESHEETS

Pathway Characteristics		Ref.
Do you suspect a release? (y/n)	No	
Distance to surface water (feet):	3000	17
Flood frequency (years):	1-10	1
What is the downstream distance (miles) to:		
a. the nearest drinking water intake?	N.A.	17
b. the nearest fishery?	0.6	17
c. the nearest sensitive environment?	N.A.	17

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	0		
2. NO SUSPECTED RELEASE		500	
LR =	0	500	

Drinking Water Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
3. Determine the water body type, flow (if applicable), and number of people served by each drinking water intake.			
4. PRIMARY TARGET POPULATION 0 person(s)	0		
5. SECONDARY TARGET POPULATION Are any intakes part of a blended system? (y/n): N	0	0	
6. NEAREST INTAKE	0	0	
7. RESOURCES	0	5	
T =	0	5	

Drinking Water Threat Target Populations

Intake Name	Primary (y/n)	Water Body Type/Flow	Population Served	Ref.	Value
None					

Total Primary Target Population Value	0
Total Secondary Target Population Value	0

*** Note : Maximum of 6 Intakes Are Printed ***

Apportionment Documentation for a Blended System

The City of Farmers Branch purchases its water directly from the City of Dallas. The City of Dallas receives its water from man-made reservoirs and lakes (Ref. 1, pp. 21, 22).

Ref: 1

Human Food Chain Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
8. Determine the water body type and flow for each fishery within the target limit.			
9. PRIMARY FISHERIES	0		
10. SECONDARY FISHERIES	0	12	
T =	0	12	

Human Food Chain Threat Targets

Fishery Name	Primary (y/n)	Water Body Type/Flow	Ref.	Value
1 Elm Fork	N	>100-1000 cfs	15	12
2 Trinity	N	>1000-10000 cfs	15	12

Total Primary Fisheries Value 0
Total Secondary Fisheries Value 0

*** Note : Maximum of 6 Fisheries Are Printed ***

Environmental Threat Targets

TARGETS	Suspected Release	No Suspected Release	References
11. Determine the water body type and flow (if applicable) for each sensitive environment.			
12. PRIMARY SENSITIVE ENVIRONMENTS	0		
13. SECONDARY SENSITIVE ENVIRONS.	0	0	
T =	0	0	

Environmental Threat Targets

Sensitive Environment Name	Primary (y/n)	Water Body Type/Flow	Ref.	Value
None				

Total Primary Sensitive Environments Value	0
Total Secondary Sensitive Environments Value	0

*** Note: Maximum of 6 Sensitive Environments Are Printed ***

Surface Water Pathway Threat Scores

Threat	Likelihood of Release(LR) Score	Targets(T) Score	Pathway Waste Characteristics (WC) Score	Threat Score LR x T x WC / 82,500
Drinking Water	500	5	32	1
Human Food Chain	500	12	32	2
Environmental	500	0	32	0

SURFACE WATER PATHWAY SCORE: 3

Soil Exposure Pathway Criteria List
Resident Population

Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination? (y/n/u)	N
Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator? (y/n/u)	N
Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities? (y/n/u)	N
Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems? (y/n/u)	N
Does any neighboring property warrant sampling? (y/n/u)	N

Other criteria? (y/n) N

RESIDENT POPULATION IDENTIFIED? (y/n) N

Summarize the rationale for Resident Population:

No residences, schools, or day-care facilities are located on or within 200 feet of the facility (Ref. 17). The area surrounding the acility is considered industrial (Ref. 4, p. 1).

Ref: 4, 17

SOIL EXPOSURE PATHWAY SCORESHEETS

Pathway Characteristics		Ref.
Do any people live on or within 200 ft of areas of suspected contamination? (y/n)	No	17
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination? (y/n)	No	17
Is the facility active? (y/n):	Yes	20

LIKELIHOOD OF EXPOSURE	Suspected Contamination	References
1. SUSPECTED CONTAMINATION LE =	550	

Targets

2. RESIDENT POPULATION 0 resident(s) 0 school/daycare student(s)	0	17 17
3. RESIDENT INDIVIDUAL	0	
4. WORKERS 101 - 1000	10	2
5. TERRES. SENSITIVE ENVIRONMENTS	0	
6. RESOURCES	5	
T =	15	

WASTE CHARACTERISTICS

WC = 32

RESIDENT POPULATION THREAT SCORE: 3

NEARBY POPULATION THREAT SCORE: 1

Population Within 1 Mile: 1 - 10,000

SOIL EXPOSURE PATHWAY SCORE: 4

Soil Exposure Pathway Terrestrial Sensitive Environments

Terrestrial Sensitive Environment Name	Reference	Value
None		
Total Terrestrial Sensitive Environments Value		

*** Note : Maximum of 7 Sensitive Environments Are Printed ***

Air Pathway Criteria List
Suspected Release

Are odors currently reported? (y/n/u)	N
Has release of a hazardous substance to the air been directly observed? (y/n/u)	N
Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air? (y/n/u)	N
Does analytical/circumstantial evidence suggest release to air? (y/n/u)	N
Other criteria? (y/n) N	
SUSPECTED RELEASE? (y/n)	N

Summarize the rationale for Suspected Release:

The ponds contained liquids except when sludges were being transferred to the dry waste pit; therefore, a release from the ponds is remote due to the non-volatile nature of the lead contaminated sludges being processed (Ref. 1, p. 42). The dry waste it was used to contain chemically fixed waste removed from the ponds. Exposure of the dry wastes to the weathering process could have caused the waste to be broken into fine particulates which could have been carried by the winds of the area. There is no documented release from the surface impoundments to the air. The impoundments have been excavated and backfilled and are currently closed.

Ref: 1

AIR PATHWAY SCORESHEETS

Pathway Characteristics

		Ref.
Do you suspect a release? (y/n)	No	
Distance to the nearest individual (feet):	100	2

LIKELIHOOD OF RELEASE	Suspected Release	No Suspected Release	References
1. SUSPECTED RELEASE	0		
2. NO SUSPECTED RELEASE		500	
LR =	0	500	

Targets

TARGETS	Suspected Release	No Suspected Release	References
3. PRIMARY TARGET POPULATION 0 person(s)	0		
4. SECONDARY TARGET POPULATION	0	63	
5. NEAREST INDIVIDUAL	0	20	
6. PRIMARY SENSITIVE ENVIRONS.	0		
7. SECONDARY SENSITIVE ENVIRONS.	0	0	
8. RESOURCES	0	5	
T =	0	88	

WASTE CHARACTERISTICS

WC =	0	32

AIR PATHWAY SCORE:	17

Air Pathway Secondary Target Populations

Distance Categories	Population	References	Value
Onsite	340	2	52
Greater than 0 to 1/4 mile	5	17	1
Greater than 1/4 to 1/2 mile	33	17	1
Greater than 1/2 to 1 mile	95	17	0
Greater than 1 to 2 miles	9404	18	3
Greater than 2 to 3 miles	29788	18	4
Greater than 3 to 4 miles	28342	18	2
		Total Secondary Population Value	63

Air Pathway Primary Sensitive Environments

Sensitive Environment Name	Reference	Value
None		

Total Primary Sensitive Environments Value

*** Note : Maximum of 7 Sensitive Environments Are Printed***

Air Pathway Secondary Sensitive Environments

Sensitive Environment Name	Distance	Reference	Value
None			

Total Secondary Sensitive Environments Value

SITE SCORE CALCULATION	SCORE
GROUND WATER PATHWAY SCORE:	1
SURFACE WATER PATHWAY SCORE:	3
SOIL EXPOSURE PATHWAY SCORE:	4
AIR PATHWAY SCORE:	17
SITE SCORE:	9

SUMMARY

1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water? No

   If yes, identify the well(s).

   If yes, how many people are served by the threatened well(s)? 0

2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water?
   A. Drinking water intake No
   B. Fishery No
   C. Sensitive environment (wetland, critical habitat, others) No

   If yes, identity the target(s).

3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility? No

   If yes, identify the properties and estimate the associated population(s)

4. Are there public health concerns at this site that are not addressed by PA scoring considerations? No

   If yes, explain:

PA-SCORE DOCUMENTATION LOG SHEET

SITE: GNB INCORPORATED

IDENTIFICATION NUMBER: TXD007331879

CITY: FARMERS BRANCH

STATE: TEXAS

REFERENCE NUMBER	DESCRIPTION OF THE REFERENCE
1	PR/VSI Report for GNB Incorporated. Prepared by A.T. Kearney, Inc. and Mittelhauser Corp. for EPA Region 6, August 1987.
2	Record of Communication. Additional Information Concerning GNB, Inc. From: B. Kendrick, Geologist, ICF Technology, Inc. To: Bill Backus, Environmental Engineer, GNB, Inc. February 4, 1993. TXD007331879.
3	Memorandum. Transmittal of RCRA Facility Assessment Evaluation. From: Bill Luthans, Technocal Section (6H-CT), EPA. To: William Honker, Chief, Permits Section (6H-CP), EPA. October 14, 1988. TXD007331879.
4	Industrial Solid Waste Disposal Compliance Monitoring Inspection. Prepared by Jinny G. Menard, Inspector, Texas Department of Water Resources. April 20, 1984.
5	Subsurface Investigation: Underground Effluent Pipeline. Prepared by Professional Service Industries, Inc. for GNB Battery, Inc. March 1984.
6	Letter. From: E.C. Milton, Manager, Facilities Engineering, GNB, Inc. To: Mike Dick, Hazardous Wate Division, Texas Department of Water Resources. October 28, 1983.
7	Nordstrom, Phillip L., Geologist, Texas Department of Water Resources. "Occurrance, Availability, and Chemical Quality of Ground Water in the Cretaceous Aquifers of North-Central Texas." Volume 1, Report 269. April 1982.
8	Letter. HRS Net Precipitation Values. From: Andrew M. Platt, Group Leader, Hazardous Waste Systems. To: Lucy Sibold, U.S. Environmental Protection Agency. May 26, 1988.

9 Groundwater Quality Assessment Plan. Prepared by NFS/National Soil Services, Inc. for GNB, Inc. December 14, 1983.

10 U.S. Environmental Protection Agency. Current and Proposed National Primary and Secondary Drinking Water Regulations and Health Advisories for Other Contaminants. January 18, 1991.

11 Texas Water Commission. Quarterly Ground Water Monitoring Report for Hazardous Waste Facilities. April 26, 1990.

12 Record of Communication. Water Supply for the City of Farmers Branch. From: B. Kendrick, Geologist, ICF Technology, Inc. To: Richard Cannon, City of Farmers Branch. February 2, 1993. TXD007331879.

13 Letter. Phase II Testing Project: Two-Year, 24-Hour Rainfall Map; GEMS Data. From: Lauren Ray, HQST, Ecology and Environment, Inc. To: Phase II Project Managers. August 5, 1988. Enclosure: 1961 Rainfall Frequency Atlas of the United States. U.S. Weather Bureau Technical Paper No. 40.

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17 Memorandum. Measurements and Calculations for GNB. From: S. Bret Kendrick, Task Manager, ICF Technology, Inc. To: File. February 4, 1993. TXD007331879.

18 U.S. Environmental Protection Agency, Geographical Exposure Modeling System (GEMS) database, compiled from U.S. Census Bureau 1990 data, accessed February 2, 1993.

19 Record of Communication. Current Regulatory Status of GNB. From: B. Kendrick, Geologist, ICF Technology, Inc. To: Agetha Benjeman, RCRA Enforcement, EPA. February 4, 1993. TXD007331879.

20 Memorandum. On-Site Reconnaissance Inspection of GNB, Inc. From: S. Bret Kendrick, Task Manager, ICF Technology, Inc. To: File. February 4, 1993. TXD007331879.

21 Letter. From: Fred B. Woods, Chief, Administrative Branch, EPA. To: Everett Milton, GNB, Inc. January 8, 1992.

PA-SCORE
REFERENCE 1

PR/VSI REPORT

FOR

GNB INCORPORATED
FARMERS BRANCH, TEXAS

PREPARED FOR:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VI
ALLIED BANK TOWER, 12TH FLOOR
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

UNDER

CONTRACT NO. 68-01-7374
WORK ASSIGNMENT NO. R26-01-19

PREPARED BY:

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AUGUST 1987

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EXECUTIVE SUMMARY

This PR/VSI Report addresses the GNB Incorporated facility located in Farmers Branch, Texas. A total of seventeen solid waste management units (SWMUs) and seven areas of concern (AOCs) have been identified.

The facility was originally utilized by Morton Foods Company in the manufacturing and packaging of pickled food products. In 1971 the facility was purchased by Gould, Incorporated, for the purpose of manufacturing batteries. GNB, Incorporated purchased the facility from Gould, Incorporated, in March of 1984.

The main wastes generated by the facility are those derived from the treatment of acidic wastewaters that contain lead. Additional lead bearing wastes are collected in baghouses, or from the discarding of lead containing materials, mainly batteries. The facility generates only a small quantity of organics, from the cleaning of batteries and laboratory operations.

The facility has employed three methods of treating the acidic wastewaters over the years. Prior to 1985, the wastewaters were neutralized in two concrete neutralization pits. The neutralization results in precipitation of metals, including lead. The neutralized wastes were allowed to flow to a series of four unlined ponds (surface impoundments). The solids were allowed to settle, and the water was pumped to the sanitary sewer. The settled solids were either chemically stabilized using the Chemfix process, or sent directly off site for disposal. The Chemfix solids were allowed to remain in an on-site disposal pit area.

In 1985, the facility significantly changed their treatment system. Two 5,000-gallon polypropylene tanks were installed to replace the neutralization pits. The old neutralization pits served as secondary containment for the tanks. The facility also installed a filter press to dewater the sludges containing the the precipitated metals, and took the ponds out of service. A Closure Plan covering the ponds and the dry waste disposal area was submitted to the State. The facility also removed the waste materials from the ponds and the dry waste area, and is currently awaiting official approval of the Closure Plan by the Texas Water Commission.

The facility made minor changes to the wastewater treatment operation in 1986, including sending the filter cake to a company smelter in Frisco, Texas. Operations prior to 1985 resulted in a high probability of releases to soil and groundwater because of the unlined impoundments. The current wastewater treatment operations result, with one exception, in a low probability of continuing releases to the environment. The one exception is the pipe which carries the wastewaters from the building to the neutralization tanks. The design is poor (bell and spigot), the materials of construction are poor (clay tile), and a crack was discovered in 1984. Therefore an RFI is recommended for this unit. Sampling of other areas is also recommended to insure that past management practices have not resulted in residual contamination.

Good management practices, which were observed during the VSI, should result in a low probability of continuing releases from the baghouses, rejected lead containing components, or solvent impregnated rags.

Significantly elevated levels of sulfates (up to 1,835 mg/l) have been found in RCRA ground water monitoring wells. The critical statistic for specific conductance has also been tripped. However, no lead has been detected (detection limit of .05 mg/l) during the last 4 quarterly samplings. There is a low probability of continuing releases to ground water, for the reasons stated above. The existing ground water contamination problem can be addressed as part of the closure approval process.

1.0 INTRODUCTION

This section of the Preliminary Review (PR)/Visual Site Inspection (VSI) report covers the purpose and scope of the RCRA Facility Assessment (RFA) program. The contents of the other sections of this report also are described.

1.1 Purpose and Scope of the RFA Program

The 1984 Hazardous and Solid Waste Amendments (HSWA) provide new authority to U.S. Environmental Protection Agency (EPA) to require comprehensive corrective actions on solid waste management units (SWMUs) and other areas of concern (AOC) at interim status hazardous waste management facilities, particularly those applying for RCRA permits. These corrective actions are intended to address unregulated releases of hazardous constituents to air, surface water, soil, and ground water, as well as the generation of subsurface gas.

One of the major segments of EPA's corrective action program consists of RCRA Facility Assessments (RFAs) to identify releases or potential releases requiring further investigation. According to EPA's RCRA Facility Assessment Guidance Document, the four purposes of an RFA are to:

1. Identify and gather information on releases at RCRA regulated facilities;

2. Evaluate SWMUs and areas of concern for releases to all media and regulated units for releases other than ground water;

3. Make preliminary determinations regarding releases of concern and the need for further actions and interim measures at the facility; and

4. Screen from further investigation those SWMUs which do not pose a threat to human health and the environment.

The three basic steps of an RFA consist of a preliminary review (PR) of available information, a visual site investigation (VSI) to obtain additional information on releases, and a sampling visit (SV) to fill the data gaps by obtaining field and analytical data.

1.2 Contents of this Report

This report presents the results of the PR and VSI of the GNB

Batteries, Inc. (GNB) facility located in Farmers Branch, Texas. Information regarding hazardous and solid waste management units identified during the Preliminary Review (PR) was obtained from the following principal sources:

- The facility's Part A Hazardous Waste Permit Applications, including revisions;
- Texas Department of Water Resources. Various interoffice memorandums;
- Various letters from EPA Region VI to the GNB facility;
- Professional Service Industries, Inc. Ground water Elevations Report for GNB Batteries;
- Groundwater Monitoring Reports for 1986 and 1987;
- A telephone conversation with David Maiefski of EPA Region VI on July 7, 1987;
- A telephone conversation with Charles Mauk of the Texas Water Commission on July 7, 1987;
- A telephone conversation with Bill Backus, maintenance supervisor of GNB in Farmers Branch, on July 9, 1987;
- A telephone conversation with Everett Milton of GNB on August 25, 1987;
- The facility's Closure (and Post-Closure) Plan for surface impoundments, originally dated January 11, 1984, last modified March 14, 1986;
- A USGS map of the Carrollton Quadrangle, Texas. 7.5 minute series (topographic); and
- The County and City Data Book 1983, U.S. Department of Commerce, Bureau of the Census.

A visual site inspection (VSI) was performed on July 17, 1987 to verify the information obtained during the preliminary review and to identify any other SWMUs or areas of concern. The GNB representatives who were present included Mr. Everett Milton, Manager Environmental Engineering; Mr. Bill Backus, Maintenance Supervisor ; Mr. Robert Wilson, GNB's attorney; and Mr. R. Clark George, GNB's consultant. The A.T. Kearney subcontractor representative was Mittelhauser Corporation.

Section 2.0 of this report contains a description of the GNB facility, including its historical and current operations. Individual SWMUs also are identified in Section 2.0, along with a summary description of the wastes managed by the facility. Section 3.0 provides an overview of the environmental setting at the facility, comprising meteorology and air quality, floodplain and surface water, geology and soils, ground water, and receptor information. In Section 4.0, a broad assessment of release pathways is made, covering the potential for releases to soil, ground water, surface water, and air. Section 5.0 contains detailed discussions of each SWMU, while Section 6.0 covers other areas of concern (i.e., releases from production areas, spills, and evidence of contamination of unknown origin). Section 7.0 provides conclusions and recommendations (enforcement sensitive). Section 8.0 provides a list of references. The VSI field log and VSI photograph log are presented as appendices to the report.

2.0 FACILITY AND PROCESS DESCRIPTION

This section of the PR/VSI report covers the location of the GNB Batteries, Inc. (GNB) facility, historical and current operations, brief descriptions of the solid waste management units (SWMUs) that were identified, and a brief description of the wastes managed at the facility.

2.1 Location [2, 23, 24]

GNB operates a facility located in the City of Farmers Branch, Dallas County, Texas, approximately 1.25 miles west of the intersection of Valley View Lane and Interstate 35E [2, 24]. The facility is at 96° 54' 58" longitude and 32° 55' 12" latitude [24]. The location of the facility is shown in Figure 1. Downtown Dallas is located approximately 12 miles southeast of the facility [24].

The areas to the north and south of the facility have been extensively mined for sand and gravel [2]. The facility is located within the Farmers Branch corporate limits, and is less than 2 miles west of the central business district along Valley View Lane. Farmers Branch has a population of approximately 25,000 [23].

2.2 Historical and Current Operations [1, 2, 17, 22, 29, 30]

The facility was originally utilized by Morton Foods Company in the manufacturing and packaging of pickled food products [17, 29]. In 1971, the facility was purchased by Gould, Incorporated (Inc.) for the purpose of manufacturing batteries [29]. GNB Batteries, Inc. purchased the battery operation from Gould, Inc. in March of 1984 [29].

The basic manufacturing processes are described in 40 CFR 461. The specific processes employed by GNB are considered proprietary, but the above reference adequately describes the sources of the wastes [30]. Wastewaters are generated by spills of acids, or from cleaning of the outside of batteries. The wastewaters contain lead since the spilled materials have come into contact with the lead cells of the battery. The baghouses collect lead containing wastes to provide safety for the workers.

As discussed above, the battery manufacturing process generates wastewaters that are acidic and contain lead. The facility has changed wastewater treatment practices twice since operations began [1, 2, 29]. A process flow diagram from 1971 (beginning of operation) until May 1985 is shown in Figure 2 [1]. The facility then changed operations, as shown in Figure 3 [2]. These operations ran from May 1985 until March 1986. The facility then switched to their current process which is shown in Figure 4 [29].

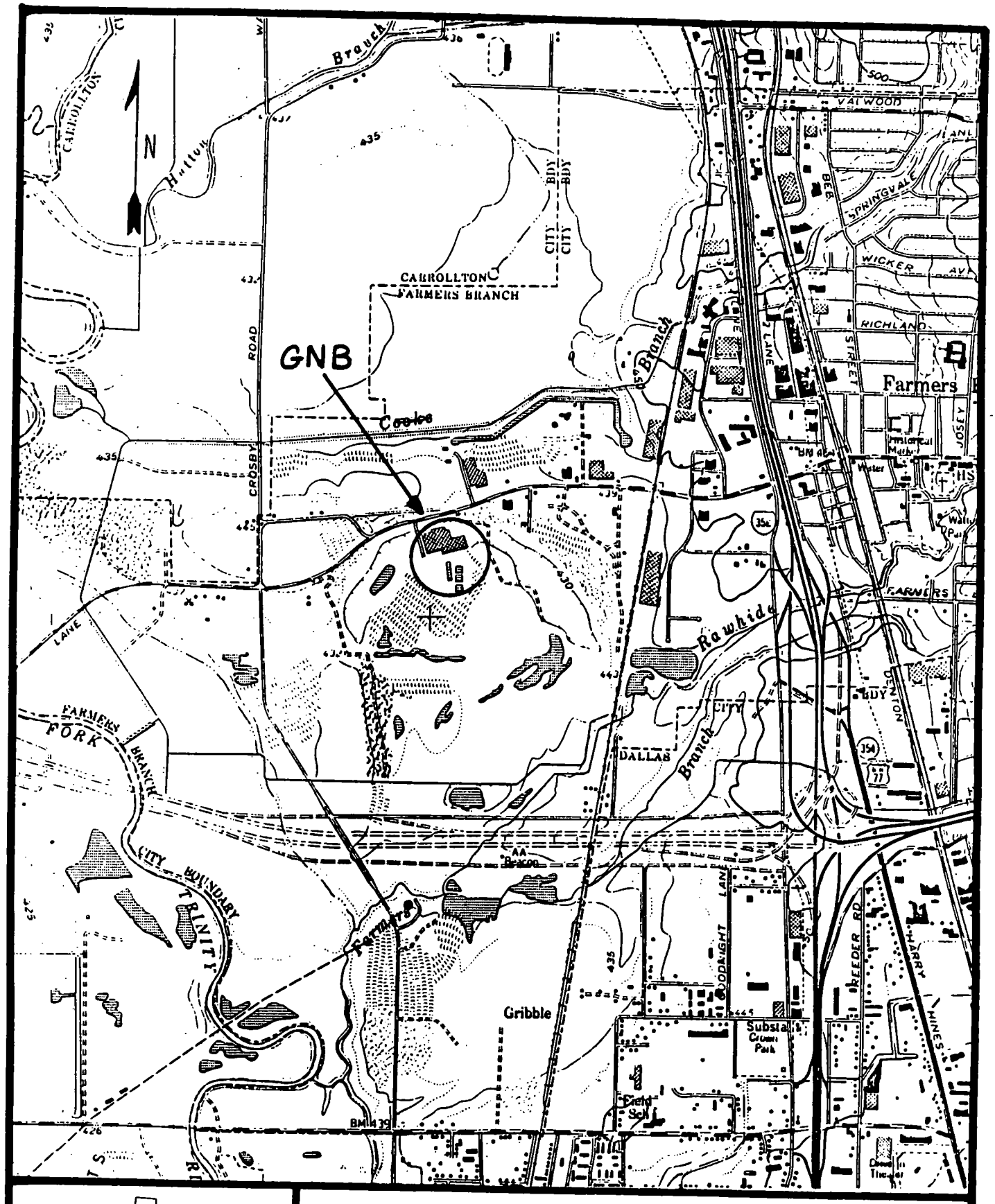


FIGURE 1
SITE LOCATION MAP
GNB BATTERIES, INCORPORATED
FARMERS BRANCH, TEXAS
Source: USGS 7.5' Carrollton Quadrangle

GNB Batteries, Inc.

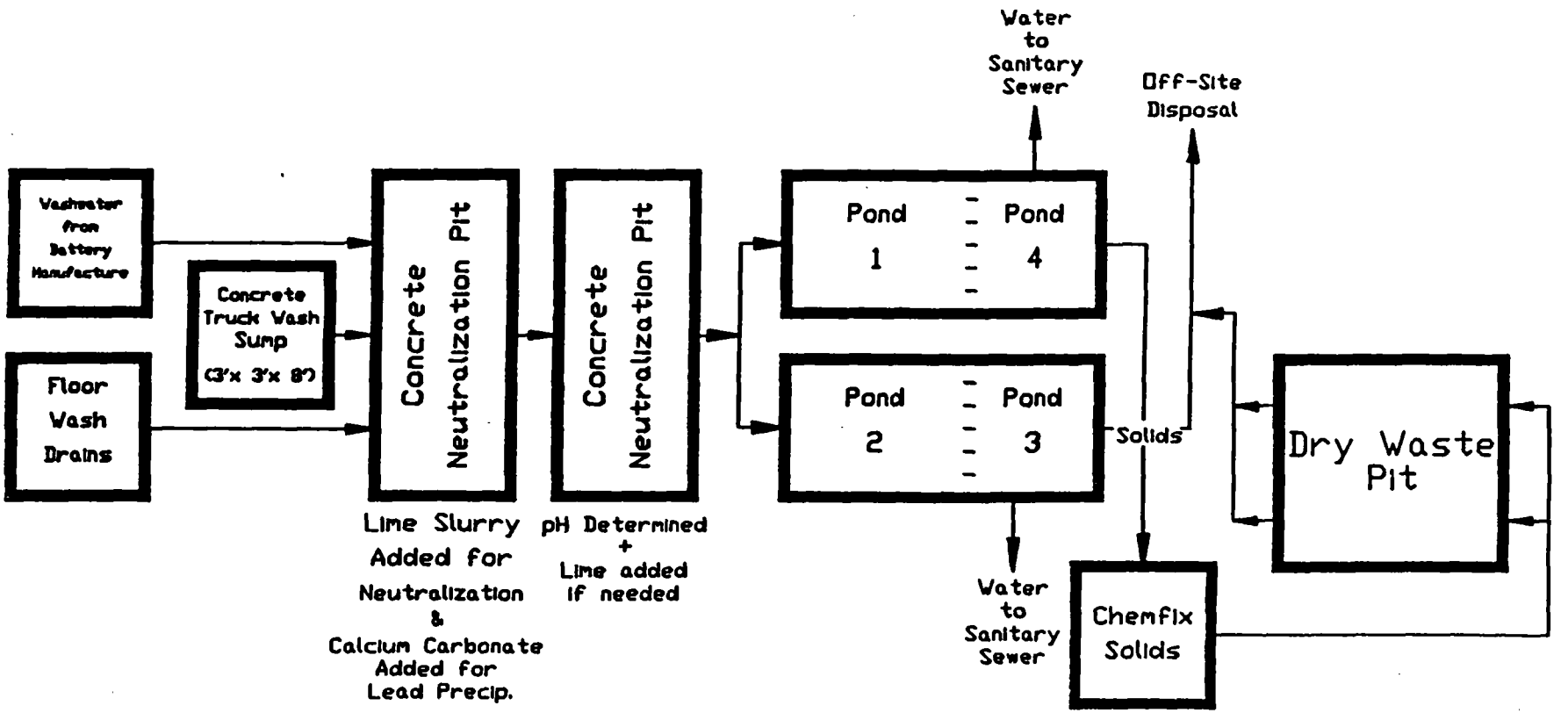


Figure 2: Process Flow Diagram (1972-1985)

Mittelhauser Corporation
August 1987

GNB Batteries, Inc.

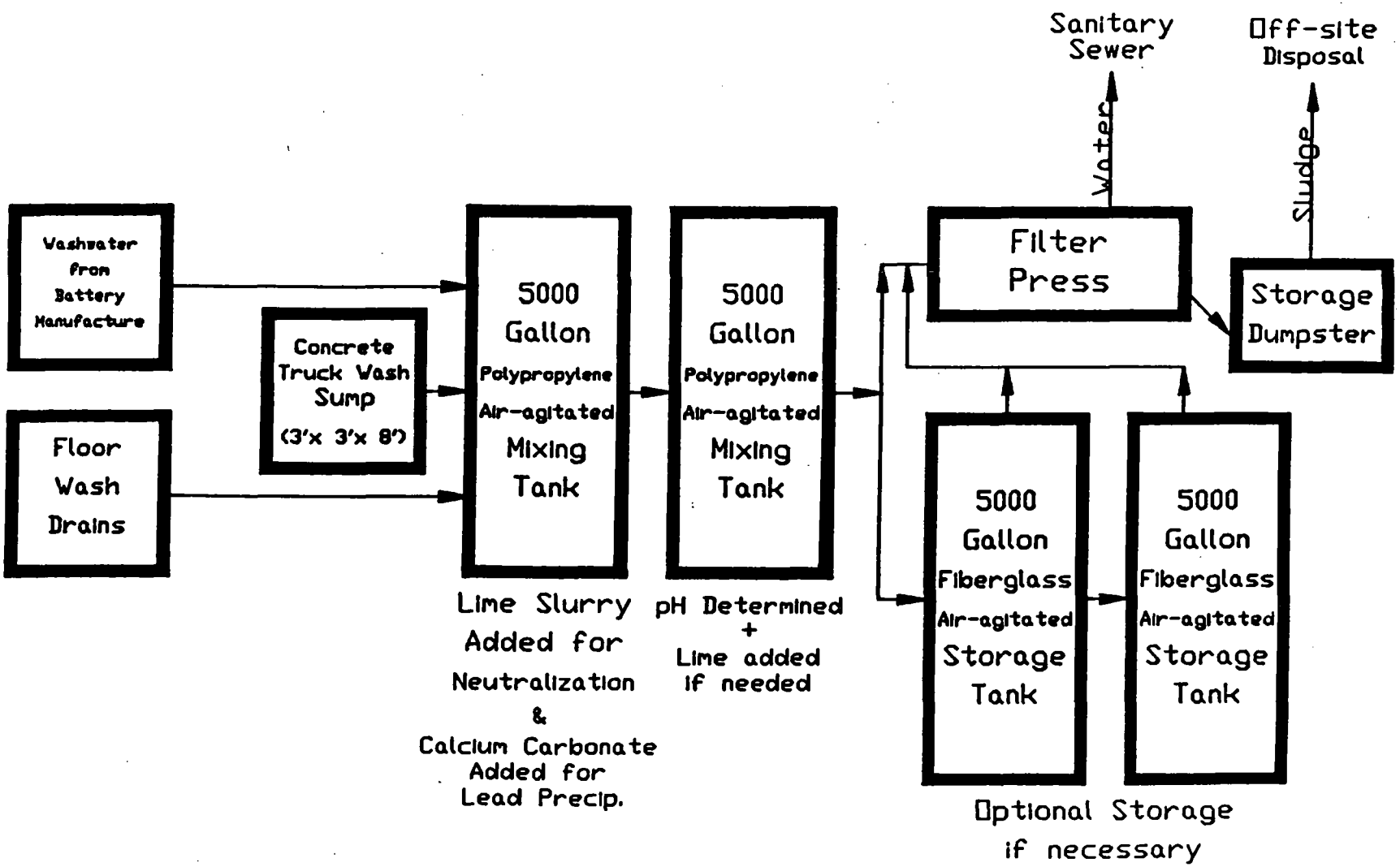


Figure 3: Process Flow Diagram (1985–86)

Mittelhauser Corporation
August 1987

GNB Batteries, Inc.

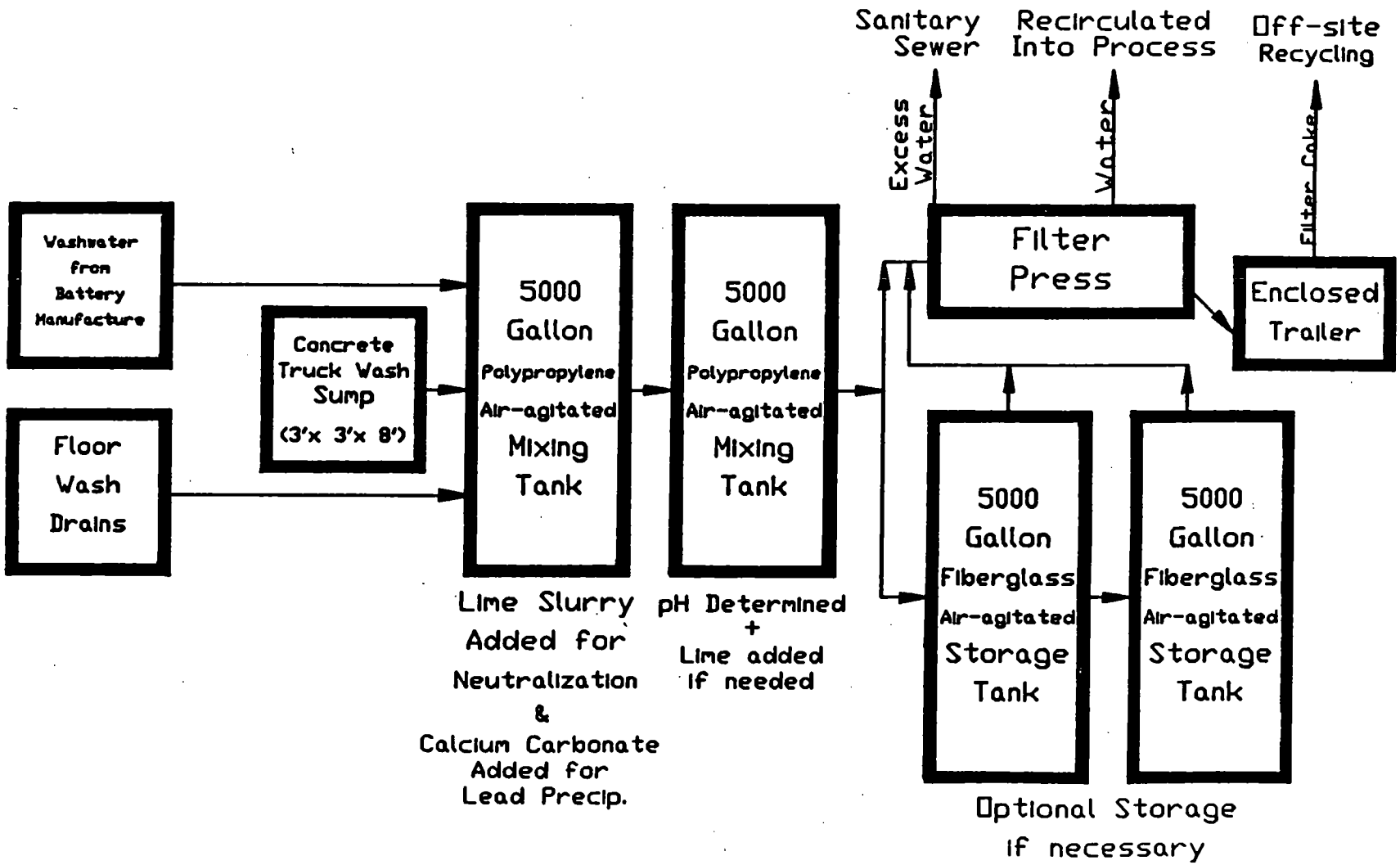


Figure 4: Process Flow Diagram (1986–)

Mittelhauser Corporation
August 1987

Prior to 1985, acidic wastewater containing EP toxic levels of lead from the battery manufacturing process, floor wash drains, and truck wash sump (SWMU 2) was fed to the first of two concrete pits (SWMUs 3 and 4) in which treatment occurred [1, 2]. Lime and calcium carbonate were added to raise the pH to a suitable level for optimum precipitation of lead hydroxide [2]. The lime was added by means of flexible hoses. The discharge from the first pit went to a second pit where additional lime was added and the pH was adjusted. The discharge from the second pit fed one of two lagoons (SWMUs 5 and 7). Each lagoon was composed of two ponds (SWMUs 5 and 6, SWMUs 7 and 8). Solids were allowed to settle in the ponds and the effluent water was sent to the sanitary sewer.

A pH probe in the second pit prevented pumping into the pond system if the pH was less than 5.0. The settled solids were stabilized using the Chemfix process and left on site in a solids storage area (SWMU 9). The stabilized solids were sent off site for disposal until 1982. Solids from the ponds, which were not stabilized, were sent to the Rollins facility in Deer Park, Texas for disposal in 1984.

In 1985 (approximately May 22nd), the process was changed to eliminate the use of the neutralization pits and of the ponds. A 5,000-gallon polypropylene tank was installed for the primary neutralization step inside the prior first neutralization pit. Therefore, the pit now serves as a secondary containment vessel. However, according to the facility [30], leaks in the tanks have not occurred and, therefore, it has not been used for secondary containment. A second polypropylene tank was also installed for supplemental lime addition. The amount of lime added was determined by pH measurements. This polypropylene tank was installed inside the former secondary neutralization pit. The tank has not leaked [30]. The effluent from the second polypropylene tank was sent to a filter press (or to one of two fiberglass storage tanks before the filter press). The solids generated in the filter press were stored in a hazardous waste dumpster before being sent to a Chemical Waste Management facility for disposal as a hazardous waste. The effluent water was monitored and sent to the sanitary sewer.

In March of 1986, the process was again changed [29]. The wastewater is still pumped to the polypropylene tanks, but the limetreated effluent from these tanks is pumped back into the facility building (SWMU 17). A filter press is still used to separate the water from the solids, but now the treated effluent is recirculated through the process and the solids are sent to the company smelter in Frisco, Texas for reprocessing. The water which is not needed in the process is sent to the sanitary sewer system.

2.3 Identification of Solid Waste Management Units (SWMUs) [1, 16, 22, 29]

As a result of the PR and VSI, a total of seventeen Solid Waste Management Units (SWMUs) were identified. These units are listed in Table 1. This Table also describes the wastes managed, the operational dates, whether the units are RCRA regulated, and whether there is an existing ground water monitoring program for the unit.

Units 1 through 9 are directly related to treatment of wastewaters from the battery manufacturing process. The Wastewater Pipe (SWMU 1) and the Truck Wash Sump (SWMU 2) fed the two sequential Neutralization Pits/Tanks (SWMU 3 and 4). The effluent from the Neutralization Pits fed the Pond system (SWMU 5 through 8), as shown in Figure 2. Stabilized solids from the Ponds were placed in the Dry Waste Pit (SWMU 9). As previously discussed, SWMUs 3 through 9 have been taken out of service. A Closure Plan has been submitted [22]. The State prepared a letter approving the Plan, but the facility claims they have not received this letter [16].

The Storage Trailer Area has three trailers. One trailer contains hazardous wastes. There are also three dumpsters on the facility (SWMU 11 through 13), and one of these dumpsters (SWMU 11) contains hazardous wastes. In addition, there are three baghouses (SWMU 14 through 16), all of which handle hazardous wastes. The final SWMU, number 17, consists of the two 5,000-gallon fiberglass storage tanks and the filter, which are currently inside the building and are part of the wastewater treatment system (see Figure 4).

Table 1 also identifies 7 areas of concern, which are discussed further in Section 6.

2.4 Wastes Generated at the Facility [3]

On April 9, 1987, GNB reported to the Texas Water Commission that the following wastes were generated by the facility [3]:

Scrap and Whole Batteries
Scrap Products (not otherwise specified) with Lead
Lead Oxide and/or Dust Collected Solids
(Rejected) Plastic Battery Cases and Covers
(Rejected) Rubber Battery Cases and Covers
Plastic Battery Cases and Covers (Contaminated)
Rubber Battery Cases and Covers (Contaminated)
Sludge with Lead
Epoxy

TABLE 1
GNB BATTERIES, INCORPORATED
SOLID WASTE MANAGEMENT UNITS (SWMUs)
AND AREAS OF CONCERN (AOCs)
FARMERS BRANCH, TEXAS

SWMU NO.	UNIT NAME	WASTES MANAGED	OPERATIONAL DATES	RCRA REGULATED	+ GW
1	Wastewater Pipe	D008	1972-present	No	No
2	Truck Wash Sump	D008	1978-present	No	No
3	First Neutralization Pit/Tank	D008	1972-present	Yes	No
4	Second Neutralization Pit /Tank	D008	1972-present	Yes	No
5	Pond 1	D008	1972-1985	Yes	Yes
6	Pond 4	D008	1972-1985	Yes	Yes
7	Pond 2	D008	1972-1985	Yes	Yes
8	Pond 3	D008	1972-1985	Yes	Yes
9	Dry Waste Pit	D008	1972-1985	Yes	Yes
10	Storage Trailer Area	D008	1971-present	No	No
11	Dumpster Area 1	D008	1984-present	No	No
12	Dumpster Area 2	NH*	1971-present	No	No
13	Dumpster Area 3	NH	1971-present	No	No
14	Baghouse 1 (casting)	D008	1984-present	No	No
15	Baghouse 2 (vacuum)	D008	1971-present	No	No
16	Baghouse 3 (assembly)	D008	1971-present	No	No
17	Indoor WWT	D008	1986-present	No	No
	AREAS OF CONCERN				
	Low Area (east)	-	Unknown	No	No
	Low Area (west)	-	Unknown	No	No
	Off-site Drainage Ditch	-	Unknown	No	No
	Ponds (A-D)	-	Unknown	No	No
	On-site Drainage Ditch	-	1971-present	No	No
	Acid Spill Area	-	Nov. 3, 1980	No	No
	Hose Break Area	-	April 26, 1984	No	No

\+ GW = Ground Water Monitoring * NH = Not Hazardous

Lead and lead containing wastes are shipped to the GNB Incorporated smelter in Frisco, Texas for recycling or processing.

A Notice of Registration, dated 11-13-86, also shows the generation and disposal of mineral spirits and a separate waste stream described as halogenated solvents [15]. These materials are derived from laboratory operations at the facility.

A wastewater is also generated from the filter press (see Figure 4). Most of this water is recirculated to the process, but some is discharged to a POTW.

Table 2 summarizes the waste materials generated at the GNB facility.

TABLE 2
GNB BATTERIES, INCORPORATED
WASTE MATERIALS DESCRIPTION
FARMERS BRANCH, TEXAS

WASTE	DESCRIPTION	USEPA WASTE NUMBER
Lead Contaminated Sludge	Heavy metal sludge produced from the neutralization of acidic wastes from within the battery manufacturing plant. The sludge contains approximately 55% water, 38% calcium sulfate, and 7% lead.	D008
Lead Contaminated Materials	Scrap and Whole Batteries. Scrap Products (Not otherwise specified). Contaminated Plastic and Rubber Battery Cases and Covers.	D008
Baghouse Dust	Miscellaneous lead containing dusts from hand vacuums and overhead ducts along assembly line.	D008
Contaminated Rags/Cloths	Miscellaneous rags and cloths soaked in solvents for cleaning batteries prior to shipping.	*
Wood Pallets	Broken wood pallets.	*
Dry Batteries	Miscellaneous off-spec and mispunched batteries.	*

* = Not Listed as a Hazardous Waste

3.0 ENVIRONMENTAL SETTING

3.1 Meteorology and Air Quality [2, 18]

Summers are hot in Dallas County with an average temperature of 84 degrees F, and an average daily maximum temperature of 94 degrees F. In winter the average temperature is 48 degrees F, and the average daily minimum temperature is 38 degrees F. Winters are cool as a result of occasional surges of cold air, which cause the otherwise mild temperatures to drop.

The total annual precipitation is 36 inches, while the annual average evaporation is 63-65 inches. Of the precipitation, 20 inches, or 57 percent, usually falls in April through September. Average seasonal snowfall is 2 inches.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 79 percent. The sun shines 75 percent of the possible time in summer and 55 percent in winter.

The prevailing wind is from the south. Average wind speed is highest, 13 miles per hour, in April.

3.2 Floodplain and Surface Water [2,24,26,27]

The GNB facility is located approximately 1 mile to the west of the Elm Fork of the Trinity River, and approximately 7 miles to the southeast of North Lake. The Trinity River passes through downtown Dallas before discharging into the Gulf of Mexico.

The site is protected from flood waters of the Trinity River by earthen dikes constructed along both sides of the river by the Corp of Engineers.

Farmers Branch, like most suburbs of Dallas, purchases its water directly from the City of Dallas. The amount of water purchased varies daily, monthly, and seasonally. The maximum amount purchased in one day during June, 1987 was 11,662,000 gallons.

The City of Dallas receives most of its water from man-made reservoir/lakes. Dallas receives its water from the following sources: Lake Ray Hubbard, Grapevine Lake, Lewisville Lake, and Lake Tawakoni. It also has access to the Lake Fork Reservoir and Lake Palestine, when needed.

The City of Dallas has recently begun filling another reservoir (Lake Ray Roberts) for future use. It is estimated that this lake will be full in six years.

No water is taken directly from aquifers in the area, or directly from rivers. However, the Elm Fork of the Trinity River fills three of the reservoir lakes that Dallas uses for water (Grapevine Lake, Lewisville Lake, and Lake Ray Roberts). The Sabine River fills Lake Tawakoni and the Lake Fork Reservoir.

3.3 Geology and Soils [2,17]

The GNB facility is situated, physiographically, on the Gulf Coastal Plain province. The original site soils have been stripped away by extensive sand and gravel mining in the vicinity of the GNB site. This sand and gravel mining has left fill over bedrock at the site composed of clay, sand, and gravel. This fill appears to be rather heterogenous in nature, as drastic lithologic changes occur in relatively short distances, as shown by the boring logs. The fill materials, however, have predominantly coarse-grained textures.

Regionally, alluvial sand and gravel deposits are extensive over the area, and range up to 300 feet thick. These thick Quaternary alluvial deposits are the target for local sand and gravel mining. The reworked alluvium at the GNB facility is approximately 10 to 15 feet in thickness. This reworked alluvial overlies shale ~~bedrock of the~~ Cretaceous Eagle Ford Group.

The Eagle Ford Group is typified by undivided shale, limestone, and sandstone deposits. Calcareous concretions with large, irregular, internal polygonal cracks are common. The Woodbine Formation underlies the Eagle Ford Group and forms the base of the Gulfian Series of the Cretaceous sediments. In general, the deposits of Cretaceous Age dip to the south-southeast.

3.4 Ground Water [2,17,28]

The company installed a bentonite slurry wall and two monitoring wells in 1976 near the surface impoundments. Three additional wells were installed in March, 1983. All five wells are finished in the reworked alluvium above bedrock. Ground water saturates the reworked alluvium to form water table conditions at the site. The water table in the reworked alluvium fluctuates, but rises to approximately 5 feet from the surface grade. A compliance order was issued September 27, 1984, ordering, among other items, the development of a ground water assessment plan. This requirement was based on ground water sampling in 1982 which identified elevated concentrations of lead (0.09 mg/l and 0.15 mg/l) in the northern and southern wells, and sulfates in the northern and southern wells (890 mg/l and 645 mg/l).

Ground water monitoring results (28) for 1986 and 1987 were reviewed. Results were available for samples taken 2-27-86, 4-24-86, 8-27-86 and 3-31-87. No lead was found in any well (MW-1A, MW-2A, MW-3A, MW-N, MW-S). The detection limit was .05 mg/l. Significant levels of sulfates, however, were found in all wells. The lowest levels were found in well MW-3A, ranging from 75 to 140 mg/l. The highest levels were found in MW-S, ranging from 480 to 1,835 mg/l. Sulfates in the other wells generally ran between 790 and 980 mg/l. The secondary Maximam Contaminant level for sulfate is 250 mg/l (40 CFR 143.3). There was no apparent decrease in sulfates levels over time. Indeed, the highest levels in all wells, except MW-N, were observed on 3-31-87. A significant increase in the specific conductance data was reported for MW-S on 2-27-86, 4-24-86 and 3-31-87. No significant increases were reported, for any wells, for pH, TOC, or TOX.

As part of the ground water assessment monitoring plan, GNB has installed a total of five ground water monitoring wells, and nine piezometers. The tentative results of this assessment indicate that ground water flow direction is to the southeast, with a gradient that ranges from approximately 0.008 to 0.013. There is no information available concerning the hydraulic conductivity of the alluvium and, therefore, no ground water flow velocities or rates can be calculated.

The shales of the Eagle Ford Group should impede vertical migration of ground water in the vicinity of the GNB facility. The ground water could, however, migrate off site and actually create springs or seeps into the surrounding gravel pits and result in further releases to the environment. The ultimate fate of any contaminants that had migrated into the gravel pits would depend on the hydrogeologic environment in connection with the gravel pit itself.

3.5 Receptor Information [23, 24]

The GNB facility is located just west of Farmers Branch, Texas and northwest of Dallas, Texas, in Dallas County. The area just to the south of the facility has been extensively mined for sand and gravel.

An April 1, 1980 census shows the population of Dallas County as 1,556,390, covering approximately 880 square miles. The census [23] also shows Farmers Branch with a population of 24,863, covering 12.5 square miles.

Dallas County contains approximately 980 farms (as of 1980) which cover about 41.5 percent of all land in the county. Of the land in Dallas County, 1.5 percent is irrigated.

The prevailing wind is from the south. Average wind speed is highest, 13 miles per hour, in April. There are no towns directly in the path of the prevailing wind in the immediate vicinity of the facility.

The major waterway in the area is the Elm Fork of the Trinity River which passes just to the west of the facility. The river passes directly through downtown Dallas before actually discharging into the Gulf of Mexico. Rawhide Creek passes south of the facility before discharging into the Elm Fork of the Trinity River.

4.0 RELEASE PATHWAYS

4.1 Ground Water Pathway [2]

The ground water levels appear to fluctuate greatly but reach levels as high as 5 feet below grade.

The major sources of concern for ground water contamination were the four settling ponds. However, the ponds are RCRA regulated and are currently undergoing closure. All wastes have been removed and soils have been tested to insure that there is no contamination. Therefore, once the ponds are properly closed and certified, there is a low potential for future releases. Prior to closure, these ponds were unlined, but the company installed a bentonite slurry wall designed to prevent ground water releases. The wall was installed in 1976, five years after the battery manufacturing operations began. The wall was installed approximately eight feet into the bedrock. Lead and sulfate contamination were detected at company installed ground water monitoring wells located outside the slurry wall. Therefore, the potential for past releases from these ponds is high.

4.2 Soil Pathway [2]

The soils in the area are rather heterogenous in nature, due to extensive mining, and drastic changes in soil texture occur in relatively short distances. The soils are predominantly coarse-grained and are, thus, moderately permeable. Therefore, there is a moderate potential for migration of hazardous wastes or hazardous waste constituents through the soils.

Due to the extensive mining in the nearby area, the route of the ground water through the soils is unknown but could possibly connect to many of the nearby lakes from which Dallas receives its water supply.

4.3 Surface Water Pathway [13, 19, 24]

The GNB facility is located near the Elm Fork of the Trinity River. The facility maps show six areas that are labeled as either depressed areas or ponds. During the VSI these areas were all dry, but it is assumed that these areas collect water during rainstorms. There is also a drainage channel just south of the property line which is labeled as having 3 feet of water. A 2 foot concrete main from at least one of the ponds to this drainage channel was found [19]. However, according to the facility, this main is left over from when Morton Foods owned the property and has been plugged since operation of the ponds by Gould, Inc. began in 1972.

The drainage channel eventually discharges into the Elm Fork of the Trinity River and the 2 foot concrete main presented a potential direct connection between the ponds and the river in the event that the plug developed leaks.

It has been documented that the company did not maintain an adequate freeboard in the ponds when they were in operation [13]. If the water level in the ponds overtopped during a heavy rainstorm, the depressed areas could have retained wastes and presented another release pathway for surface water contamination during subsequent rainfalls.

The ponds are RCRA regulated and are currently undergoing closure. All wastes have been removed and soils have been tested to insure that there is no contamination. Therefore, once the ponds are properly closed and certified, there is a low potential for future releases to surface waters.

4.4 Air Pathway [18]

The prevailing wind is from the south. Average wind speed is highest, 13 miles per hour, in April. There are no towns located directly in the path of the prevailing wind. However, downtown Farmers Branch is located less than 1.5 miles directly to the east of the facility, and the Dallas city boundary is less than a mile to the southeast.

There is a school and a park approximately 1.25 miles to the east of the facility.

The major waste handled at the facility is acidic lead contaminated wastewaters generated from battery manufacturing. The non-volatile nature of lead presents little possibility of air emissions.

The only units identified as having a realistic potential for air releases were the hazardous waste dumpster (SWMU 11) and the casting baghouse (SWMU 14).

The only volatile wastes handled at the facility are naphtha and acetone. These are contained in rags which are used to clean the completed batteries prior to shipment. The rags are stored in drums within an enclosed trailer located on SWMU 10 and present a low potential for air releases.

4.5 Subsurface Gas Pathway

The potential for release of subsurface gas is low due to the nature of the wastes being handled at the facility (non-volatile lead contaminated wastewaters with no organics).

5.0 DESCRIPTION OF SOLID WASTE MANAGEMENT UNITS (SWMUs)

This section provides an assessment of the 17 SWMUs located at the GNB facility that were identified during the PR and VSI. The following descriptions contain information on each SWMU including a unit description, dates of operation, wastes managed, release controls, history of releases, and potential for releases to ground water/soils, surface water, and air, plus the potential for generation of subsurface gas.

Table 3 presents a summary of the SWMUs. The table shows the wastes managed, operating dates, release controls, and history of releases from the units.

5.1 SWMU 1: Wastewater Pipe

5.1.1 Information Summary

Unit Description: This unit is an underground pipeline that carries the wastewaters from within the plant building out to the neutralization tanks. All the floor drains within the facility are consolidated into one pipe before leaving the plant building. While installing a shut-off valve for the pipe, facility representatives noted a crack on the top of the pipe, and an improperly sealed feeder line into the pipe. This incident took place on January 24, 1984. There were no visual signs of leaks, but soil samples were taken and sent to the State. The State did not respond to the submission of sample data. Therefore, no further action was taken. The pipe is clay tile of the bell and spigot design. The pipe has no leak detection, and any cracks which have developed might not be found for a long period of time. The unit is buried under a concrete paved area and was not able to be inspected during the VSI.

Dates of Operation: The line has been utilized since 1972. It is currently in use.

Wastes Managed: The pipeline carries wastewater from the plant processes to the neutralization tanks. The wastewater is acidic and contains lead.

Release Controls: There are no release controls.

History of Releases: The only documented potential release was the uncovering of the crack and feeder line situation in January 1984. No action was pursued by the State after GNB reported the information along with sample data.

TABLE 3

GNB BATTERIES, INCORPORATED

SOLID WASTE MANAGEMENT UNIT (SWMU) SUMMARY AND RELEASE INFORMATION

FARMERS BRANCH, TEXAS

SWMU #	Name	Waste Managed	Operating Dates	Release Controls	History of Releases
1	Wastewater Pipe	D008	1972-present	None	Crack found in pipe in 1984.
2	Truck Wash Sump	D008	1978-present	None	No Known Releases
3	First Neutralization Pit/Tank	D008	1972-present	None	No Known Releases
4	Second Neutralization Pit/Tank	D008	1972-present	None	No Known Releases
5	Pond 1	D008	1972-1985	Slurry Wall	Lead and Sulfates detected in ground water monitoring wells located outside of slurry wall
6	Pond 4	D008	1972-1985	Slurry Wall	(See SWMU 5 Comment)
7	Pond 2	D008	1972-1985	Slurry Wall	(See SWMU 5 Comment)
8	Pond 3	D008	1972-1985	Slurry Wall	(See SWMU 5 Comment)
9	Dry Waste Pit	D008	1972-present	None	No Known Releases
10	Storage Trailer Area	D008 NH(+)	1971-present	Concrete Paved Area	No Known Releases
11	Dumpster Area 1	D008	1984-present	Concrete Paved Area	No Known Releases
12	Dumpster Area 2 (pallets)	NH	1971-present	Concrete Paved Area	No Known Releases
13	Dumpster Area 3 (trash)	NH	1971-present	Concrete Paved Area	No Known Releases
14	Baghouse 1 (casting)	D008	1971-present	Concrete Paved Area	No Known Releases
15	Baghouse 2 (vacuum)	D008	1971-present	Inside Plant	No Known Releases
16	Baghouse 3 (assembly)	D008	1971-present	Inside Plant	No Known Releases
17	Indoor WWT	D008	1986-present	Inside Plant	No Known Releases

+ NH= Not Listed as a Hazardous Waste

5.1.2 Release Potential

Ground Water/Soils: The unit has a high potential for releases to ground water, both past and continuing. The pipe is not well suited for carrying wastewater, and there is a good chance that leaks have developed or will develop. The pipe is of the bell and spigot design and is composed of clay tile which is easily cracked.

Surface Water: The unit displays low potential for a past or continuing release to surface water because it is underground. The only source of surface water contamination would be through the ground water.

Air: This unit has a low potential for past or continuing air releases due to the fact that it is buried underground.

Subsurface Gas: The unit has a low potential for past or continuing generation of subsurface gas due to the types of wastes being handled (acidic, lead contaminated wastewater with no organics).

5.2 SWMU 2: Truck Wash Sump (VSI Photo 2)

5.2.1 Information Summary

Unit Description: This SWMU is a 3 foot x 3 foot x 8 feet deep reinforced concrete collection sump which is used to collect wastewater resulting from the washing down of the trailers, trucks, and floor scrubbing machines used within the facility. The sump feeds the first neutralization tank directly by means of a gravity drain from the top of the sump. The VSI discovered no cracks or evidence of overflows which would indicate potential releases. The unit is not lined or provided with any secondary containment features. The concrete pad is sloped towards the grate and the sides of the pad are curbed. There is a seam in the concrete pad surrounding the grate. This may afford a potential pathway for contaminant migration into soils. There was no evidence to suggest that the sump had ever overflowed.

Dates of Operation: The unit was installed in 1978. It is currently active.

Wastes Managed: This unit is used to collect wash water from the cleaning of truck trailers and plant maintenance (dust collection) equipment. Some of this material may contain lead.

Release Controls: There are no release controls.

History of Releases: There is no documented history of releases for this unit.

5.2.2 Release Potential

Ground Water/Soils: During the VSI, the unit appeared to be in good condition and no cracks were noted. A slight potential for contaminant migration exists from the seam in the concrete pad. Therefore, there is a low potential for the occurrence of past or continuing releases to ground water or soils.

Surface Water: The potential for past or continuing releases to surface water is low. The unit discharges wastes directly to the first neutralization tank and is designed to handle heavy rainstorms without overflowing.

Air: The potential for a past or continuing release to the air is low due to the non-volatile nature of lead. Release of sulfuric acid vapors could, potentially, be a concern for people in the immediate vicinity of the sump, but not for the population at large.

Subsurface Gas: The potential for past or continuing subsurface gas generation is low due to the types of wastes being handled and the nature of the sump.

5.3 SWMU 3: First Neutralization Pit/Tank (VSI Photos 2 and 3)

5.3.1 Information Summary

Unit Description: This neutralization pit received untreated wastewaters from the floor drains within the plant, the truck wash sump, and the manufacturing process until approximately May 22, 1985, when the facility switched waste handling procedures. Lime for neutralization, and calcium carbonate to improve lead removal, were added into this pH monitored, concrete pit. The pit was equipped with air agitation and lime addition. Addition of chemicals into the pit was accomplished by means of a flexible hose so that the point of addition was not fixed. After the primary neutralization and precipitation process was complete, the neutralized wastes flowed to the Second Neutralization Pit (SWMU 4) via riser pipes from the bottom of the first pit.

This neutralization pit is constructed of concrete. The unit is partially underground and had no means of inspection while in operation because there was continuous flow [9].

A picture of the first neutralization pit, as it existed on November 4, 1982, is shown as Photo A [8].

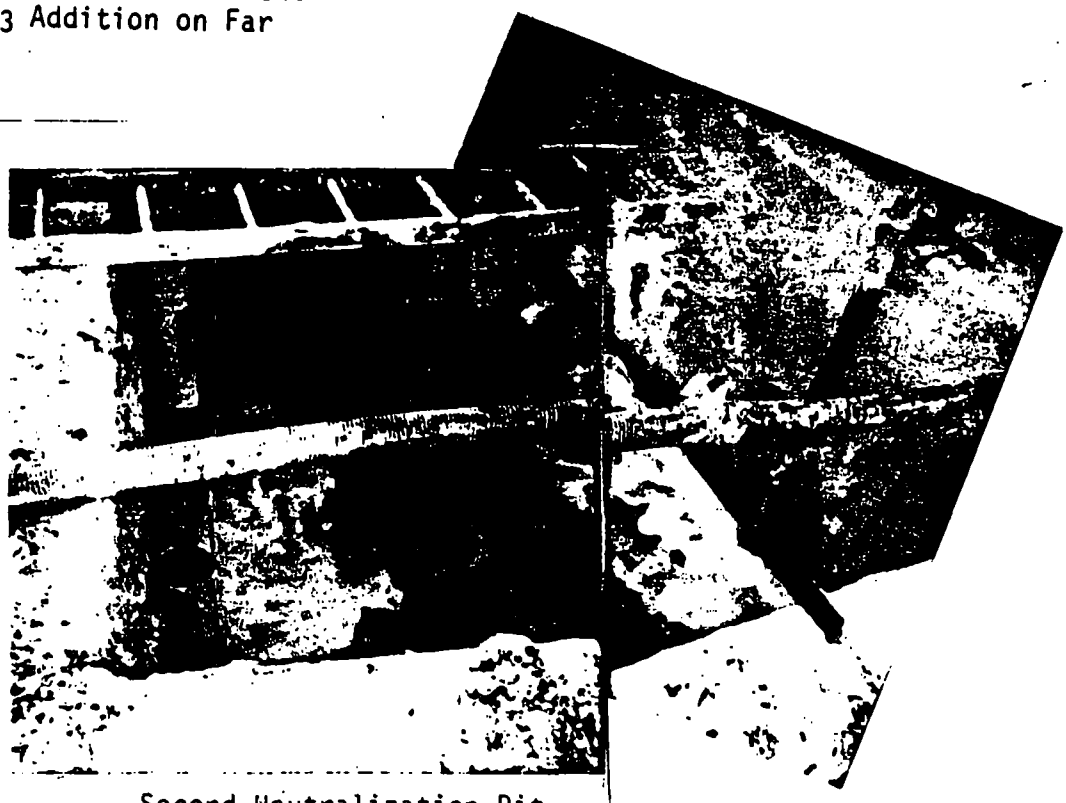
A pit liner was installed in 1984 [14]. The liner was fabricated from a UV protected PVC sheet material (grey, 60 mil) and laid loose over the pit. Attachment was via booting with backing plates at 8-12 inch intervals around the top perimeter. However, during the VSI, Everett Milton of GNB indicated that this liner leaked and the facility decided to abandon the neutralization pit in favor of a polypropylene tank. The pit is currently being used as secondary containment for the tank. Also, according to Mr. Milton, there have been have been no known leaks from the pit [30].

The tank has a 5,000-gallon capacity. It is used in the same manner as the neutralization pit. The tank was installed in 1985.

Any cracks would be the major avenues for migration out of this unit. During the VSI, the pit apperared to be in sound condition with no signs of cracks.

Dates of Operation: The pit was used from 1972 to 1985. The tank has been in use since 1985. The pit itself is currently used for secondary containment.

First Neutralization Pit Influent on Left - $CaCO_3$ Addition on Far Wall



Second Neutralization Pit

Texas Department of Water Resources – District 4
Gould Inc Neutralization P.Ts 11/4/8- D Tax...

PHOTO A

Wastes Managed: The waste handled by this SWMU is the wastewater from plant processes. This waste is acidic and contained lead.

Release Controls: There was an attempt at lining the pit at one time. This did not prove successful so, the tank was installed. The pit provides secondary containment.

History of Releases: There is no documented history of releases from this unit.

5.3.2 Release Potential

Ground Water/Soils: The neutralization pit was unlined until 1984. It had no means of inspection because it was partially underground, and there was continuous flow. Due to the acidic nature of the wastes, there is high potential for past releases to ground water or soils from this unit, although none have occurred [30]. The unit is presently being used as secondary containment for wastes being treated in the first polypropylene tank. Thus, the potential for continuing releases is low.

Surface Water: The design and location of the unit give it a low potential for past releases to surface water. The unit discharges to the second neutralization pit and there is no evidence that the unit has ever overflowed. The unit is in operation as secondary containment presently. The potential for continuing releases is low.

Air: The potential for a past or continuing release to the air is low due to the non-volatile nature of the lead and calcium sulfate wastes being processed.

Subsurface Gas: The potential for past or continuing subsurface gas generation is low due to the types of wastes (acidic, lead containing materials with no organics) being handled.

5.4 SWMU 4: Second Neutralization Pit/Tank (VSI Photos 2 and 3)

5.4.1 Information Summary

Unit Description: This unit received treated wastewaters via riser pipes from the first neutralization pit (SWMU 3). Air agitation continued in this pit and a second pH reading was taken. If necessary, additional lime was added. The pH probe in this second pit also controlled a safety override by sounding an alarm and preventing the pump from starting if the pH was below 5.0. If the pH was acceptable, automatic level controls pumped the treated wastes into the pond system (SWMUs 5 through 8) for settling prior to discharge.

This neutralization pit is constructed of concrete. The unit is partially underground and had no means of inspection while in operation because there was continuous flow [9].

A picture of the second neutralization pit, as it existed on November 4, 1982, is shown as Photo A [8].

A pit liner was installed in 1984 [14]. The liner was fabricated from a UV protected PVC sheet material (grey, 60 mil) and laid loose over the pit. Attachment was via booting with backing plates at 8-12 inch intervals around the top perimeter. However, during the VSI, Everett Milton of GNB indicated that this liner leaked and the facility decided to abandon the neutralization pit in favor of a polypropylene tank. The pit is currently being used as secondary containment for the tank. Also, according to Mr. Milton, there have been no known releases from this pit [30].

The tank has a 5,000-gallon capacity. It is used in the same manner as the neutralization pit. The tank was installed in 1985.

Any cracks would be the major avenues for migration out of this unit. During the VSI, the pit appeared to be in sound condition with no signs of cracks.

Dates of Operation: The pit was used from 1972 to 1985. The tank has been in use since 1985. The pit itself is currently used for secondary containment.

Wastes Managed: The waste handled by this SWMU is the wastewater from plant processes. This waste is acidic and contained lead.

Release Controls: There was an attempt at lining the pit at one time. This did not prove successful, so the tank was installed. The pit provides secondary containment.

History of Releases: There is no documented history of releases from this unit.

5.4.2 Release Potential

Ground Water/Soils: The neutralization pit was unlined until 1984. It had no means of inspection because it was partially underground, and there was continuous flow. Due to the acidic nature of the wastes, there is high potential for past releases to ground water or soils from this unit, although no releases have occurred [30]. The unit is presently being used as a secondary basin for wastes being treated in the first polypropylene tank. Thus, the potential for continuing releases is low.

Surface Water: The design and location of the unit give it a low potential for past releases to surface water. The unit discharges to the second neutralization pit and there is no evidence that the unit has ever overflowed. The unit is in operation as secondary containment presently. The potential for continuing releases is low.

Air: The potential for a past or continuing release to the air is low due to the non-volatile nature of the lead and calcium sulfate wastes being processed.

Subsurface Gas: The potential for past of continuing subsurface gas generation is low due to the types of wastes (acidic, lead containing materials with no organics) being handled.

5.5 SWMU 5: Pond 1 (VSI Photos 4, 6, 8, and 10)

5.5.1 Information Summary

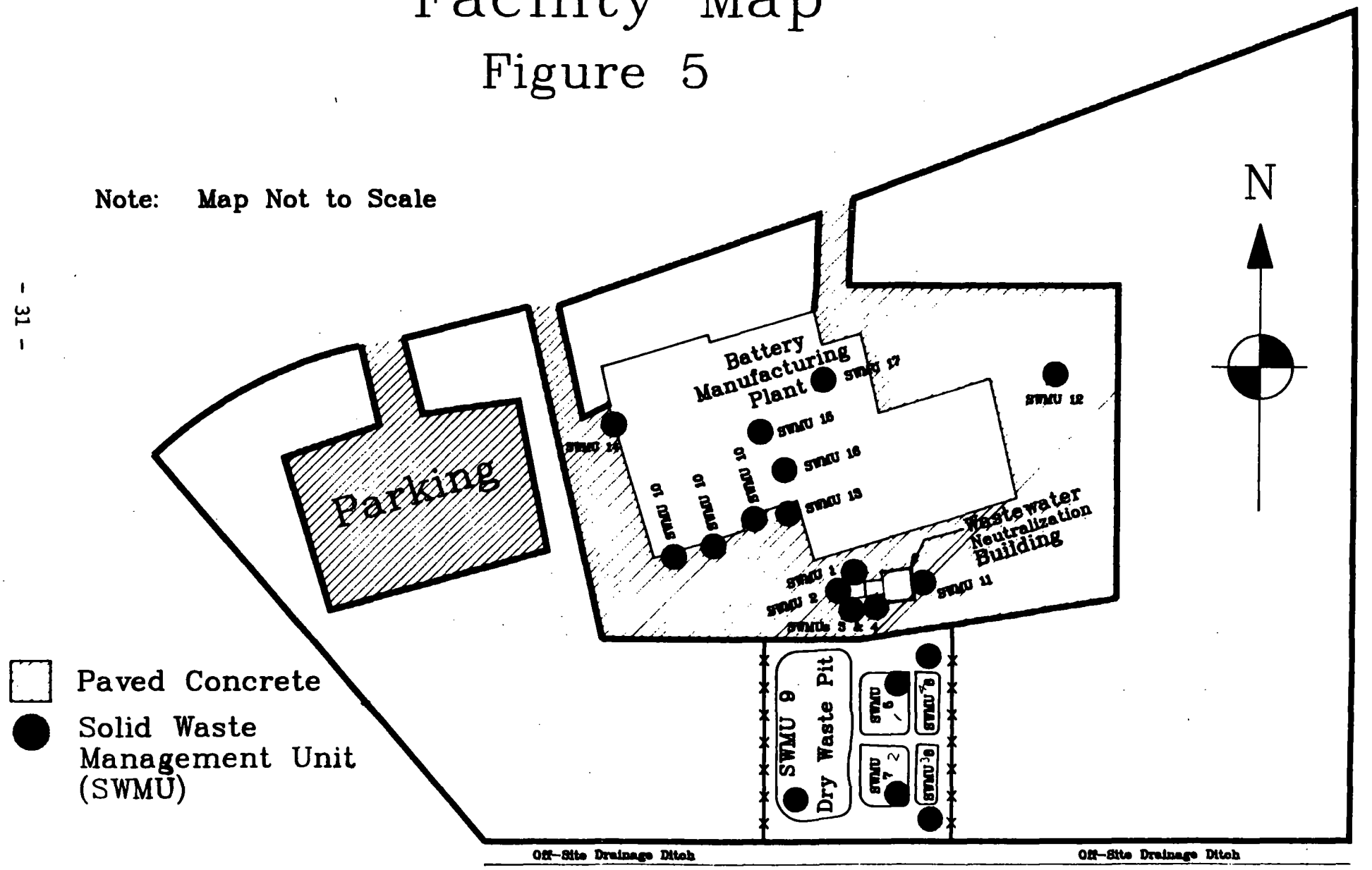
Unit Description: Pond 1 was one of four surface impoundments that received neutralized acidic wastes from the second neutralization pit. Figure 2 shows the treatment process before discharge to the surface impoundments. Figure 5 shows the location of Pond 1, as well as Ponds 2, 3, and 4 and the dry waste pit. Figure 6 shows greater details of the four ponds. Figure 7 shows a cross section of a typical pond. Pond 1 was approximately 135 feet by 89 feet and was located in the northwest corner of the four ponds. All four ponds were unlined.

Ponds 1 and 4 were hydraulically connected and together formed what is basically an inverted, truncated pyramid, approximately 120 feet x 120 feet at the base, by 12 feet deep, with the side walls having a 33% slope. The volume of this pair of impoundments was estimated at 3,612 cubic yards [10]. Ponds 2 and 3 formed a similar inverted pyramid with approximately the same volume (3,612 cubic yards). The dikes within the impoundment system were all about 10 feet wide, as can be seen from Figure 6. The dike between Pond 1 and Pond 4 was composed of a porous material which acted as a filter between the two ponds and helped separate the wastewater.

Since approximately May 22, 1985, the ponds have not been used due to a change in the disposal process at the GNB facility. Prior to this change, Ponds 1 and 2 received treated wastewater from the neutralization pits. The slurry resulted from the neutralization of sulfuric acid and contained high levels of lead. The solids contained within the slurry were allowed to settle to the bottom of the pond, and the wastewater flowed into Ponds 3 and 4 from where it was eventually discharged into the sanitary sewer. The sludge was then retrieved and chemically fixed on site (at least until 1982). The fixed materials were retained in the disposal pit prior to eventual off-site disposal.

The facility claims [5] that the composition of the sludge in the surface impoundments was uniform throughout the lagoon, since there is only one source of waste and the manufacturing and wastewater treatment processes are consistent. The sludges are a mixture of non-flammable solids and water. The solids are primarily calcium sulfate and water [5]. The sludges are not ignitable, corrosive, or reactive, but contain E.P. Toxic levels of lead.

GNB BATTERIES, INCORPORATED
Facility Map
Figure 5



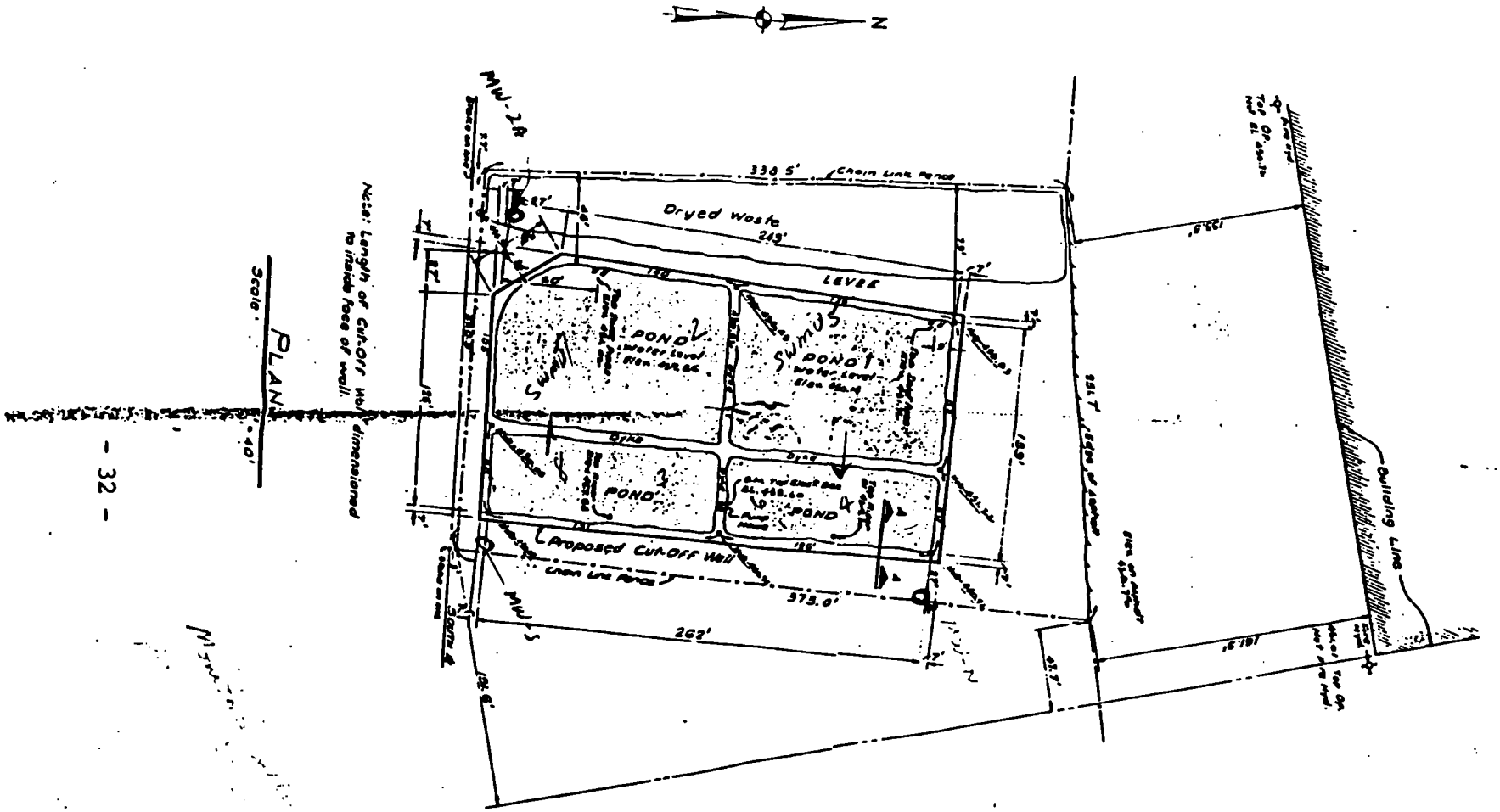


Figure 6: Detail of four ponds

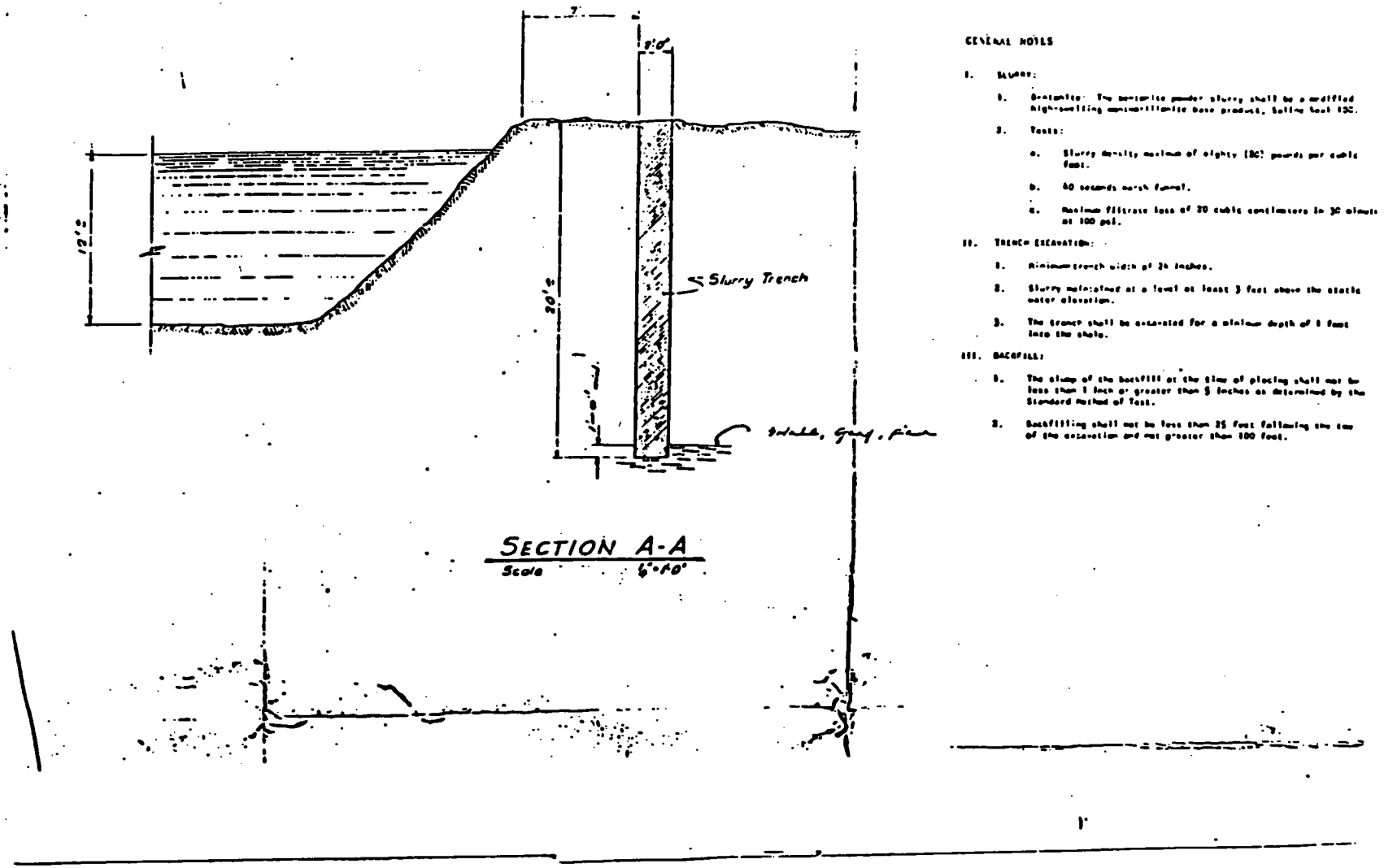


Figure 7: Cross section of a typical pond

The estimated composition of the sludge is 55% water, 38% calcium sulfate, and 7% lead [15]. Other estimated constituents include antimony (20 ppm), arsenic (0.01 ppm), cadmium (5 ppm), total chromium (200 ppm), copper (50 ppm), mercury (0.6 ppm), nickel (20 ppm), selenium (100 ppm), silver (2.0 ppm), thallium (6.0 ppm), zinc (6.0 ppm), and beryllium (70 ppm).

The sludge ponds began operation on May 15, 1972 [8]. Both installation of liners and a slurry wall were recommended during the early 1970's. The facility chose to only install the slurry wall which, according to company letters, was completed on May 28, 1976. The integrity of this wall is in question because ground water contamination has been detected in company installed monitoring wells outside the slurry wall. A 2 foot concrete main connecting some of the ponds with a drainage channel located off company property also existed. However, according to the facility, this channel is left over from when Morton Foods owned the property and has been plugged since operation of the ponds by Gould, Inc. began. The drainage channel discharges into the Trinity River. There are also low areas in the vicinity that could accept surface run-off from this pond had it ever occurred.

The ponds have not always maintained two feet of freeboard. For instance, during an inspection on February 29, 1984, there was only 9 inches of freeboard in one pond [13]. There are no records of overflowing of the pond.

Dates of Operation: The unit was in operation from 1972 to 1985.

The company has submitted a Closure Plan for the ponds and removed wastes from this area [22].

Wastes Managed: The unit accepted treated wastewaters from the neutralization system. These wastewaters contained lead and were originally acidic.

Release Controls: There were no release controls. The facility installed a bentonite slurry wall designed to prevent ground water contamination.

History of Releases: There is no documentation of releases from this unit. Inadequate freeboard had been noted; however, no instances of overflowing have been recorded. The integrity of

the slurry wall is in question because company installed monitoring wells have detected sulfate contamination outside the wall.

5.5.2 Release Potential

Ground Water/Soils: There is a high potential that past releases have occurred. Monitoring wells on site have shown elevated levels of sulfates. Also, the ponds were not lined. There is a low potential for continuing releases once closure has been completed.

Surface Water: The proximity of the low areas, the inadequately maintained freeboard, and uncertainty about whether the 2 foot main was properly sealed result in a moderate potential for past releases to surface water. The facility has submitted a Closure Plan for these ponds, and wastes and contaminated soils have been removed [22]. Therefore, there is a low potential for continuing releases to surface water.

Air: There is a low potential for past releases to the air due to the non-volatile nature of the lead contaminated sludges being processed. Once closure is completed, the potential for continuing releases will be even less.

Subsurface Gas: There is a low potential for past generation of subsurface gas due to the nature of the sludge being processed. Once closure is completed, the potential will be even less for continuing releases.

5.6 SWMU 6: Pond 4 (VSI Photos 4, 6, 8, and 10)

5.6.1 Information Summary

Unit Description: Pond 4 was one of four surface impoundments that received neutralized acidic wastes from the second neutralization pit. Figure 2 shows the treatment process before discharge to the surface impoundments. Figure 5 shows the location of Pond 4, as well as Ponds 1, 2, and 3 and the Dry Waste Pit. Figure 6 shows greater details of the four ponds. Figure 7 shows a cross section of a typical pond. Pond 4 was approximately 126 feet by 50 feet and is located in the northeast corner of the four ponds. All four ponds were unlined.

Ponds 1 and 4 were hydraulically connected and formed what is basically an inverted, truncated pyramid, approximately 120 feet x 120 feet on the base, by 12 feet deep, with the side walls having a 33% slope. The volume of this pair of impoundments was estimated at 3,612 cubic yards [10]. Ponds 2 and 3 formed a similar inverted pyramid with approximately the same volume (3,612 cubic yards). The dikes within the impoundment system were all about 10 feet wide, as can be seen from Figure 6. The dike between Pond 1 and Pond 4 was composed of a porous material which acted as a filter between the two ponds and helped separate the wastewater.

Since approximately May 22, 1985, the ponds have not been used due to a change in the disposal process at the GNB facility. Prior to this change, Ponds 1 and 2 received treated wastewater from the neutralization pits. The slurry resulted from the neutralization of sulfuric acid and contained high levels of lead. The solids contained within the slurry were allowed to settle to the bottom of the pond, and the wastewater flowed into Ponds 3 and 4 from where it was eventually discharged into the sanitary sewer. The sludge was then retrieved and chemically fixed on site (at least until 1982). The fixed materials were retained in the disposal pit prior to eventual off-site disposal.

The facility claims [5] that the composition of the sludge in the surface impoundments was uniform throughout the lagoon, since there is only one source of waste and the manufacturing and wastewater treatment processes are consistent. The sludges are a mixture of non-flammable solids and water. The solids are primarily calcium sulfate and water [5]. The sludges are not ignitable, corrosive, or reactive, but contain E.P. Toxic levels of lead.

The estimated composition of the sludge is 55% water, 38% calcium sulfate, and 7% lead [15]. Other estimated constituents

include antimony (20 ppm), arsenic (0.01 ppm), cadmium (5 ppm), total chromium (200 ppm), copper (50 ppm), mercury (0.6 ppm), nickel (20 ppm), selenium (100 ppm), silver (2.0 ppm), thallium (6.0 ppm), zinc (6.0 ppm), and beryllium (70 ppm).

The sludge ponds began operation on May 15, 1972 [8]. Both installation of liners and a slurry wall were recommended during the early 1970's. The facility chose to only install the slurry wall which, according to company letters, was completed on May 28, 1976. The integrity of this wall is in question because ground water contamination has been detected in company installed monitoring wells outside the slurry wall. A 2 feet concrete main connecting some of the ponds with a drainage channel located off company property also existed. However, according to the facility, this channel is left over from when Morton Foods owned the property and has been plugged since operation of the ponds by Gould, Inc. began. The drainage channel discharges into the Trinity River. There are also low areas in the vicinity that could accept surface run-off from this pond had it ever occurred.

The ponds have not always maintained two feet of freeboard. For instance, during an inspection on February 29, 1984, there was only 9 inches of freeboard in one pond [13]. There are no records of overflowing of the pond.

Dates of Operation: The unit was in operation from 1972 to 1985.

The company has submitted a Closure Plan for the ponds and removed wastes from this area [22].

Wastes Managed: The unit accepted treated wastewaters from the neutralization system. These wastewaters contained lead and were originally acidic.

Release Controls: There were no release controls. The facility installed a bentonite slurry wall designed to prevent ground water contamination.

History of Releases: There is no documentation of releases from this unit. Inadequate freeboard had been noted; however, no instances of overflowing have been recorded. The integrity of the slurry wall is in question because company installed monitoring wells have detected sulfate contamination outside the wall.

5.6.2 Release Potential

Ground Water/Soils: There is a high potential that past releases have occurred. Monitoring wells on site have shown elevated levels of sulfates. Also, the ponds were not lined. There is a low potential for continuing releases once closure has been completed.

Surface Water: The proximity of the low areas, the inadequately maintained freeboard, and uncertainty about whether the 2 foot main was properly sealed result in a moderate potential for past releases to surface water. The facility has submitted a Closure Plan for these ponds, and wastes and contaminated soils have been removed [22]. Therefore, there is a low potential for continuing releases to surface water.

Air: There is a low potential for past releases to the air due to the non-volatile nature of the lead contaminated sludges being processed. Once closure is completed, the potential for continuing releases will be even less.

Subsurface Gas: There is a low potential for past generation of subsurface gas due to the nature of the sludge being processed. Once closure is completed, the potential will be even less for continuing releases.

5.7 SWMU 7: Pond 2 (VSI Photos 7, 8, 10, 12, and 13)

5.7.1 Information Summary

Unit Description: Pond 2 was one of four surface impoundments that received neutralized acidic wastes from the second neutralization pit. Figure 2 shows the treatment process before discharge to the surface impoundments. Figure 5 shows the location of Pond 1, as well as Ponds 2, 3, and 4 and the Dry Waste Pit. Figure 6 shows greater details of the four ponds. Figure 7 shows a cross section of a typical pond. Pond 2 is approximately 140 feet by 105 feet and is located in the southwest corner of the four ponds (Figure 6). All four ponds are unlined.

Ponds 2 and 3 were hydraulically connected and formed what is basically an inverted, truncated pyramid, approximately 120 feet x 120 feet on the base, by 12 feet deep, with the side walls having a 33% slope. The volume of this pair of impoundments was estimated at 3,612 cubic yards [10]. Ponds 1 and 4 formed a similar inverted pyramid with approximately the same volume (3,612 cubic yards). The dikes within the impoundment system were all about 10 feet wide, as can be seen from Figure 6. The dike between Pond 2 and Pond 3 was composed of a porous material which acted as a filter between the two ponds and helped separate the wastewater.

Since approximately May 22, 1985, the ponds have not been used due to a change in the disposal process at the GNB facility. Prior to this change, Ponds 1 and 2 received treated wastewater from the neutralization pits. The slurry resulted from the neutralization of sulfuric acid and contained high levels of lead. The solids contained within the slurry were allowed to settle to the bottom of the pond, and the wastewater flowed into Ponds 3 and 4 from where it was eventually discharged into the sanitary sewer. The sludge was then retrieved and chemically fixed on site (at least until 1982). The fixed materials were retained in the disposal pit prior to eventual off-site disposal.

The facility claims [5] that the composition of the sludge in the surface impoundments was uniform throughout the lagoon, since there is only one source of waste and the manufacturing and wastewater treatment processes are consistent. The sludges are a mixture of non-flammable solids and water. The solids are primarily calcium sulfate and water [5]. The sludges are not ignitable, corrosive, or reactive, but contain E.P. Toxic levels of lead.

The estimated composition of the sludge is 55% water, 38% calcium sulfate, and 7% lead [15]. Other estimated constituents

include antimony (20 ppm), arsenic (0.01 ppm), cadmium (5 ppm), total chromium (200 ppm), copper (50 ppm), mercury (0.6 ppm), nickel (20 ppm), selenium (100 ppm), silver (2.0 ppm), thallium (6.0 ppm), zinc (6.0 ppm), and beryllium (70 ppm).

The sludge ponds began operation on May 15, 1972 [8]. Both installation of liners and a slurry wall were recommended during the early 1970's. The facility chose to only install the slurry wall which, according to company letters, was completed on May 28, 1976. The integrity of this wall is in question because ground water contamination has been detected in company installed monitoring wells outside the slurry wall. A 2 foot concrete main connecting some of the ponds with a drainage channel located off company property also existed. However, according to the facility, this channel is left over from when Morton Foods owned the property and has been plugged since operation of the ponds by Gould, Inc. began. The drainage channel discharges into the Trinity River. There are also low areas in the vicinity that could accept surface run-off from this pond had it ever occurred.

The ponds have not always maintained two feet of freeboard. For instance, during an inspection on February 29, 1984, there was only 9 inches of freeboard in one pond [13]. There are no records of overflowing of the pond.

Dates of Operation: The unit was in operation from 1972 to 1985.

The company has submitted a Closure Plan for the ponds and removed wastes from this area [22].

Wastes Managed: The unit accepted treated wastewaters from the neutralization system. These wastewaters contained lead and were originally acidic.

Release Controls: There were no release controls. The facility installed a bentonite slurry wall designed to prevent ground water contamination.

History of Releases: There is no documentation of releases from this unit. Inadequate freeboard had been noted; however, no instances of overflowing have been recorded. The integrity of the slurry wall is in question because company installed monitoring wells have detected sulfate contamination outside the wall.

5.7.2 Release Potential

Ground Water/Soils: There is a high potential that past releases have occurred. Monitoring wells on site have shown elevated levels of sulfates. Also, the ponds were not lined. There is a low potential for continuing releases once closure has been completed.

Surface Water: The proximity of the low areas, the inadequately maintained freeboard, and uncertainty about whether the 2 foot main was properly sealed result in a moderate potential for past releases to surface water. The facility has submitted a Closure Plan for these ponds, and wastes and contaminated soils have been removed [22]. Therefore, there is a low potential for continuing releases to surface water.

Air: There is a low potential for past releases to the air due to the non-volatile nature of the lead contaminated sludges being processed. Once closure is completed, the potential for continuing releases will be even less.

Subsurface Gas: There is a low potential for past generation of subsurface gas due to the nature of the sludge being processed. Once closure is completed, the potential will be even less for continuing releases.

5.8 SWMU 8: Pond 3 (VSI Photos 7, 8, 10, 12, and 13)

5.8.1 Information Summary

Unit Description: Pond 3 was one of four surface impoundments that received neutralized acidic wastes from the second neutralization pit. Figure 2 shows the treatment process before discharge to the surface impoundments. Figure 5 shows the location of Pond 3, as well as Ponds 1, 2, and 4 and the Dry Waste Pit. Figure 6 shows greater details of the four ponds. Figure 7 shows a cross section of a typical pond. Pond 3 was approximately 131 feet by 48 feet (Figure 6) and is located in the southeast corner of the four ponds. All four ponds were unlined.

Ponds 2 and 3 were hydraulically connected and formed what is basically an inverted, truncated pyramid, approximately 120 feet x 120 feet on the base, by 12 feet deep, with the side walls having a 33% slope. The volume of this pair of impoundments was estimated at 3,612 cubic yards [10]. Ponds 1 and 4 formed a similar inverted pyramid with approximately the same volume (3,612 cubic yards). The dikes within the impoundment system were all about 10 feet wide, as can be seen from Figure 6. The dike between Pond 2 and Pond 3 was composed of a porous material which acted as a filter between the two ponds and helped separate the wastewater.

Since approximately May 22, 1985, the ponds have not been used due to a change in the disposal process at the GNB facility. Prior to this change, Ponds 1 and 2 received treated wastewater from the neutralization pits. The slurry resulted from the neutralization of sulfuric acid and contained high levels of lead. The solids contained within the slurry were allowed to settle to the bottom of the pond, and the wastewater flowed into Ponds 3 and 4 from where it was eventually discharged into the sanitary sewer. The sludge was then retrieved and chemically fixed on site (at least until 1982). The fixed materials were retained in the disposal pit prior to eventual off-site disposal.

The facility claims [5] that the composition of the sludge in the surface impoundments was uniform throughout the lagoon, since there is only one source of waste and the manufacturing and wastewater treatment processes are consistent. The sludges are a mixture of non-flammable solids and water. The solids are primarily calcium sulfate and water [5]. The sludges are not ignitable, corrosive, or reactive, but contain E.P. Toxic levels of lead.

The estimated composition of the sludge is 55% water, 38% calcium sulfate, and 7% lead [15]. Other estimated constituents

include antimony (20 ppm), arsenic (0.01 ppm), cadmium (5 ppm), total chromium (200 ppm), copper (50 ppm), mercury (0.6 ppm), nickel (20 ppm), selenium (100 ppm), silver (2.0 ppm), thallium (6.0 ppm), zinc (6.0 ppm), and beryllium (70 ppm).

The sludge ponds began operation on May 15, 1972 [8]. Both installation of liners and a slurry wall were recommended during the early 1970's. The facility chose to only install the slurry wall which, according to company letters, was completed on May 28, 1976. The integrity of this wall is in question because ground water contamination has been detected in company installed monitoring wells outside the slurry wall. A 2 foot concrete main connecting some of the ponds with a drainage channel located off company property also existed. However, according to the facility, this channel is left over from when Morton Foods owned the property and has been plugged since operation of the ponds by Gould, Inc. began. The drainage channel discharges into the Trinity River. There are also low areas in the vicinity that could accept surface run-off from this pond had it ever occurred.

The ponds have not always maintained two feet of freeboard. For instance, during an inspection on February 29, 1984, there was only 9 inches of freeboard in one pond [13]. There are no records of overflowing of the pond.

Dates of Operation: The unit was in operation from 1972 to 1985.

The company has submitted a Closure Plan for the ponds and removed wastes from this area [22].

Wastes Managed: The unit accepted treated wastewaters from the neutralization system. These wastewaters contained lead and were originally acidic.

Release Controls: There were no release controls. The facility installed a bentonite slurry wall designed to prevent ground water contamination.

History of Releases: There is no documentation of releases from this unit. Inadequate freeboard had been noted; however, no instances of overflowing have been recorded. The integrity of the slurry wall is in question because company installed monitoring wells have detected sulfate contamination outside the wall.

5.8.2 Release Potential

Ground Water/Soils: There is a high potential that past releases have occurred. Monitoring wells on site have shown elevated levels of sulfates. Also, the ponds were not lined. There is a low potential for continuing releases once closure has been completed.

Surface Water: The proximity of the low areas, the inadequately maintained freeboard, and uncertainty about whether the 2 foot main was properly sealed, result in a moderate potential for past releases to surface water. The facility has submitted a Closure Plan for these ponds, and wastes and contaminated soils have been removed [22]. Therefore, there is a low potential for continuing releases to surface water.

Air: There is a low potential for past releases to the air due to the non-volatile nature of the lead contaminated sludges being processed. Once closure is completed, the potential for continuing releases will be even less.

Subsurface Gas: There is a low potential for past generation of subsurface gas due to the nature of the sludge being processed. Once closure is completed, the potential will be even less for continuing releases.

5.9 SWMU 9: Dry Waste Pit (VSI Photos 5, 9, 10)

5.9.1 Information Summary [6, 13, 22, 25, 29]

Unit Description: This unit is RCRA regulated. The unit consists of an earthen pit which was created when the soils were removed for the unit's dikes. Based on topographical maps [22], the pit is approximately four feet deep. The southern end of the pit is located adjacent to a drainage channel.

The dry waste pit was used twice prior to 1980. The exact dates of processing are unknown. The fixed materials from the fixation process were placed in this unit.

During the time period between November 1981 and March 1982, materials from Ponds 1, 4, 2, and 3 (SWMUs 5 through 8, respectively) were also chemically processed to render them a Class II waste. These wastes were stored in the dry waste pit until May or June of 1982. During this time they were taken to a Class II landfill.

In late 1983, the fixed materials were added to a Class I waste (to dewater the waste) and the combined wastes were taken to a hazardous waste disposal site. The estimated total quantity of Chemfixed waste taken to Louisiana for disposal as a hazardous waste is 600 truckloads [13].

Dates of Operation: The unit was used two times prior to 1980. The exact dates of processing prior to 1980 are unknown; however, the start-up date is assumed to be 1972. The pit ceased operating in 1985.

The company has submitted a Closure Plan for the ponds (SWMUs 5, 6, 7, and 8) which included this unit, and removed wastes from this area [22].

Wastes Managed: Materials from the ponds (SWMUs 5 through 8) were chemically processed in this unit. In documents used to get the waste reclassifed as a Class II water-based sludge, the facility showed the Chemfix process to be 97% effective [25].

Release Controls: There are no release controls.

History of Releases: According to a 1984 Texas Department of Water Resources interoffice memorandum [13], "Removal of the Chemfixed material created the pit below ground water level. At the time of the inspection, the company was pumping the ground water collected in the pit into their surface impoundment."

5.9.2 Release Potential

Ground Water/Soils: This unit had a moderate potential for past releases to the ground water and soils because the unit was unlined, even though the fixation process was shown to be 97% effective. The potential for continuing releases is low because all wastes and contaminated soils have been removed during closure.

Surface Water: This unit had a moderate potential for past releases to surface water since the unit is located adjacent to a drainage channel. The potential for continuing releases is low since wastes and contaminated soils have been removed during closure.

Air: There was a moderate potential for release to the air since the process may have resulted in generation of fine particulates that were small enough to be carried by the winds of the area. The potential for continuing releases is low since all wastes and contaminated soils have been removed during closure.

Subsurface Gas: There was a low potential for past generation of subsurface gas due to the nature of the wastes being stored in the pit. The potential for continuing generation of subsurface gas is low since all wastes and contaminated soils have been removed during closure.

5.10 SWMU 10: Storage Trailer Area (VSI Photos 20, 21)

5.10.1 Information Summary[29]

Unit Description: The VSI revealed that this unit is a typical truck dock which has a reinforced concrete pad. The pad appeared to be in good condition with no evidence of any cracks during the VSI. The storage trailer area is located at the southeast corner of the plant building.

Three (3) enclosed semi-trailers are kept at this area. Each trailer stores various wastes in 55-gallon drums. The trailers are stored for less than 90 days at this unit.

Dates of Operation: 1971 to present.

Wastes Managed: Three trailers containing different wastes are loaded and stored at this unit.

The first trailer is used to store mispunched or off-spec plastic battery casings. The casings stored are shipped for recycling to a Frisco, Texas, GNB smelter.

The second trailer is used to store drums of recyclable lead contaminated materials. The drums are sent back to the Frisco plant to be recycled. The contents of the drums vary from miscellaneous lead contaminated parts from within the plant (e.g. dust from the baghouses) to the filter cake from the wastewater filter press (SWMU 17). Miscellaneous rags and clothes, which are dipped in naphtha or acetone to clean the batteries before shipping, are also stored in the drums. This is the only place within the facility where volatile compounds are stored.

The third trailer is used to store whole junk batteries. The batteries are shipped to Frisco for recycling. All the batteries are shipped dry.

Release Controls: The unit consists of a reinforced concrete pad. There is no containment curbing surrounding the pad. Observations during the VSI indicated the concrete appeared to be in good condition and was free of cracks.

All three trailers appeared to be in good condition, and no signs of cracks or defects were observed. No leakage or spillage was observed around the trailers. Wastes were stored in 55-gallon drums. Drums that contained rags soaked with volatile solvents were closed. No free liquids in the drums were observed during the VSI.

History of Releases: There is no documented history of releases for this unit.

5.10.2 Release Potential

Ground Water/Soils: This unit has a low potential for releases to ground water and soils due to the types of wastes being handled and the reinforced concrete pad.

Surface Water: The storage area has a low potential for releases to surface water due to the way the wastes are handled and stored (e.g., contained in 55-gallon drums and placed in an enclosed trailer).

Air: The storage area has a low potential for releases to the air due to the types of wastes being stored.

Subsurface Gas: This unit has a low potential for subsurface gas generation due to the types of wastes stored and unit operation.

5.11 SWMU 11: Dumpster Area 1 (VSI Photo 11, 15, 16)

5.11.1 Information Summary

Unit Description: This unit is a plastic lined, 30-cubic yard dumpster that sits on a concrete pad. The dumster is located on the east side of the wastewater treatment building. The dumpster is adjacent to the east wall of the the building. The dumpster is under an aluminum lean-to which encloses the top and east side of the dumpster. The north and south ends of the lean-to are open for loading and unloading.

This unit stores waste for less than 90 days.

Dates of Operation: This unit started up in 1984 and is currently being used by the facility.

Wastes Managed: The sludge which was separated from the wastewater by a filter press from 1985 to 1986 was collected in this 30-cubic yard dumpster for off-site disposal at a Chemical Waste Management facility in Louisiana. Since the facility eliminated the off-site disposal by reprocessing the sludge, the dumpster has been used to store hazardous wastes generated within the plant. These wastes include gloves, clothes, pipes, etc. All the wastes stored in the dumpster are solid materials.

Release Controls: The dumpster is plastic lined and is situated on a concrete pad. The dumpster is under an aluminum lean-to which encloses the top and east side of the dumpster.

History of Releases: There is no documented history of releases from this unit.

5.11.2 Release Potential

Ground Water/Soils: The potential release to ground water and soils is low due to the nature of the storage unit and the wastes being stored.

Surface Water: The potential release to surface water is low due to the nature and design of the storage unit.

Air: There is a low potential for release to the air from the dumpster due to the nature of the wastes being stored and the structural design of the dumpster.

Subsurface Gas: There is a low potential for generation of subsurface gas due to the nature of the wastes being stored and the structural design of the unit.

5.12 SWMU 12: Dumpster Area 2 (VSI Photo 17)

5.12.1 Information Summary

Unit Description: This dumpster is used to store broken pallets and other non-hazardous wood refuse. It is located in a concrete paved area to the east of the plant near the cap/vent storage area.

Dates of Operation: 1971 to present.

Wastes Managed: This unit stores broken pallets and other non-hazardous wood refuse.

Release Controls: The dumpster is located on a concrete paved area.

History of Releases: There is no documented history of releases for this unit.

5.12.2 Release Potential

Ground Water/Soils: The dumpster presents a low potential for releases to ground water and soils due to its design, location, and the types of wastes being stored.

Surface Water: The dumpster presents a low potential for releases to surface water due to its design, location, and the types of wastes being stored.

Air: The dumpster presents a low potential for air releases due to the nature of the wastes being stored (e.g., wood pallets).

Subsurface Gas: The dumpster has a low potential for subsurface gas generation due to the nature of the wastes being stored (e.g., wood pallets).

5.13 SWMU 15: Dumpster Area 3 (VSI Photo 19)

5.13.1 Information Summary

Unit Description: This dumpster is used to store miscellaneous office and plant trash. All the trash stored within the dumpster is non-hazardous, and the dumpster is enclosed. The dumpster is directly connected to a trash compactor and is situated upon a concrete paved pad. The dumpster is located on the south side of the plant west of the shipping area. During the VSI, some black stains were noted on the concrete near the head of the dumpster, but these stains appeared to be simply those associated with a normal dumpster handling office materials.

Dates of Operation: 1971 to present.

Wastes Managed: General facility wastes (e.g., lunch room and office wastes) which are non-hazardous.

Release Controls: The area has a reinforced concrete pad.

History of Releases: There are no documented history of releases for this unit. However, during the VSI, some black stains were noted on the concrete near the head of the dumpster, but these stains appeared to be simply those associated with a normal dumpster handling office materials.

5.13.2 Release Potential

Ground Water/Soils: This area has a low potential for releases to ground water and soils due to the concrete pad and the types of wastes being stored (e.g., non-hazardous office and plant trash).

Surface Water: This area has a low potential for releases to surface water due to the concrete paved area and the types of wastes being stored (e.g., non-hazardous office and plant trash).

Air: This area has a low potential for air releases due to the enclosed dumpster and the types of wastes being stored (e.g., non-hazardous plant and office trash).

Subsurface Gas: This area has a low potential for generating subsurface gas due to its design and the types of wastes being stored (e.g., non-hazardous plant and office trash).

5.14 SWMU 14: Baghouse 1 (casting) (VSI Photo 22)

5.14.1 Information Summary

Unit Description: This baghouse is located outside at the northwest corner of the plant building. The baghouse abuts the west wall of the building. This unit collects the miscellaneous dusts produced during the casting process of battery manufacture. It is approximately 25 feet high and is situated on a 12-foot by 12-foot pad. The casting dust collects in a 55-gallon drum at the base of the baghouse which is stored in a trailer at the storage trailer area (SWMU 10) before being shipped to the smelter in Frisco for recycling. During the VSI there were no signs of any releases from the baghouse. The area around the baghouse is covered with concrete.

Dates of Operation: 1984 to present.

Wastes Managed: Miscellaneous dusts produced during the casting process of battery manufacture which are considered D008 (lead) waste.

Release Controls: The unit's design and operation procedures.

History of Releases: There is no documented history of releases for this unit.

5.14.2 Release Potential

Ground Water/Soils: This unit has a low potential for releases to ground water and soils since the area around the baghouse is covered with concrete, and the baghouse showed no signs of any releases.

Surface Water: This unit has a low potential for releases to surface water since the area around the baghouse is covered with concrete, and the baghouse showed no signs of any releases.

Air: This unit has a moderate potential for releases due to the type of unit operation. The release potential would be high in the event the unit should develop leaks or suffer structural damage which could cause an air release of lead particulates.

Subsurface Gas: This unit has a low potential for generation of subsurface gas due to the design of the unit and the types of wastes being handled (e.g., non-volatile lead contaminated dusts with no organics).

5.15 SWMU 15: Baghouse 2 (vacuum)

5.15.1 Information Summary

Unit Description: This unit is located within the facility plant, and is fed by various hand vacuums located along the battery assembly line. The unit contains a 55-gallon, plastic-lined drum which is stored in a trailer at the storage trailer area (SWMU 10) before being sent to the Frisco plant smelter for recycling.

Dates of Operation: 1971 to present.

Wastes Managed: D008 (lead) dust.

Release Controls: The unit's design and operation procedures.

History of Releases: There is no documented history of releases for this unit. The VSI discovered no signs of releases.

5.15.2 Release Potential

Ground Water/Soils: This unit has a low potential for releases to ground water and soils due to its design and location.

Surface Water: This unit has a low potential for releases to surface water due to its design and location.

Air: This unit has a low potential for air releases due to its design.

Subsurface Gas: This unit has a low potential for generation of subsurface gas due to its location (e.g., inside the plant), and the types of wastes being handled (e.g., lead dust with no organics).

5.16 SWMU 16: Baghouse 3 (assembly)

5.16.1 Information Summary

Unit Description: This unit is fed by the various overhead ducts along the battery manufacturing assembly line. The unit is very similar to SWMU 15. It contains a 55-gallon, plastic-lined drum which is stored in a trailer at the storage trailer area (SWMU 10) before being sent to the Frisco smelter for recycling. The VSI did not discover any signs of releases or leaks in the unit.

Dates of Operation: 1971 to present.

Wastes Managed: D008 (lead) dust.

Release Controls: The unit's design and operation procedures.

History of Releases: There is no documented history of releases for this unit. The VSI discovered no signs of releases.

5.16.2 Release Potential

Ground Water/Soils: This unit has a low potential for releases to ground water and soils due to its design and location.

Surface Water: This unit has a low potential for releases to surface water due to its design and location.

Air: This unit has a low potential for air releases due to its design.

Subsurface Gas: This unit has a low potential for generation of subsurface gas due to its location (e.g., inside the plant), and the types of wastes being handled (e.g., lead dust with no organics).

NOTE: In addition to the baghouses listed above, there is a baghouse which is part of the pasting process operation. This baghouse collects the miscellaneous dusts produced during this process and feeds them directly back into the assembly system. This unit was not viewed during the VSI. Due to the fact that the unit is truly a process unit rather than a SWMU, it was not included in the above listing of SWMUs. Since the baghouse is part of the process, and is inside the plant, it has a very low potential for release to any medium.

5.17 SWMU 17: Indoor Wastewater Treatment (WWT)

5.17.1 Information Summary[29]

Unit Description: Facility personnel were reluctant to discuss this unit during the VSI. This unit has a patent pending according to facility personnel.

The wastewaters that feed this unit originate from the 5,000-gallon tank that is contained by the first neutralization pit (SWMU 3). The wastewaters flow from the 5,000-gallon tank to this unit by an encased (secondary containment), underground pipeline. Once the pipe line enters the plant, it is brought above ground. The wastewater then undergoes the several step wastewater treatment process. The sludge that is generated from the process is fed to a filter press for dewatering. The resulting solids are sent to a smelter in Frisco, Texas for reprocessing. The effluent can be recirculated to the process or discharged to the public owned treatment works (POTW).

Dates of Operation: March ,1986 to present.

Wastes Managed: Wastewater containing EP toxic levels of lead (D008) from the battery manufacturing process.

Release Controls: The unit's design and operation procedures, and the unit's location inside the plant building.

History of Releases: There is no documented history of releases from this unit.

5.17.2 Release Potential

Ground Water/Soils: This unit has a low potential for releases to ground water and soils due to the unit's design and location.

Surface Water: This unit has a low potential for releases to surface water due to the unit's design and location.

Air: There is a low potential for releases to air due to the types of wastes handled by the unit.

Subsurface Gas: There is a low potential for subsurface gas generation due to the types of wastes handled by the unit.

6.0 AREAS OF CONCERN

This section of the PR/VSI report describes seven areas of concern (AOCs) that were identified during the PR and were observed during the VSI.

6.1 Low Area (East) [9, 24]

There are low areas to the east and west of the pond/pit area of the facility. These areas are labeled as being dry on some maps and as lakes on others. The areas are presumably retention basins which collect rainwater. Based on topographical maps of the facility [24], the east low area is approximately seven feet below the top of the ponds. The on-site drainage channel would prevent overflow from the ponds from reaching this area, but any spills or leaks from the eastern part of the facility would have a good chance of collecting in this area. The area could contain lead, and as such is included as an area of concern. However, the VSI did not discover any signs of contamination or releases (stressed vegetation, stained soils, etc.).

6.2 Low Area (West) [9, 24]

There is also a low area to the west of the pond/pit area. However, based on topographical maps of the facility [24], any overflow from the ponds would be intercepted by the dry waste pit and could not directly reach this area. The area still could receive overflow if the dry waste pits filled up (they are only four feet deep) and discharged into the low area. The area could also receive wastes from the western part of the plant if an undiscovered release has occurred. For this reason, the area could contain lead. Therefore, the low area is included as an area of concern. However, the VSI did not discover any signs of contamination or releases (stressed vegetation, stained soils, etc.).

6.3 Drainage Channel (off-site) [9, 24]

There is a drainage channel located just south of the company border in close proximity to the facility ponds. The prior owners of the facility (Morton Foods) had built a 2' concrete main which connected at least some of the settling ponds with this channel to prevent overflow when the ponds were in operation. This main was plugged by Gould when they bought the plant, but if it wasn't completely plugged or developed leaks, could have presented a direct connection between the settling ponds and the drainage channel. It is also known that the

facility did not maintain the required 2' of freeboard in the ponds [13], and based on topographic maps [24], any overflow from the ponds would flow directly into the drainage channel. Any water being discharged into this channel would have contained high quantities of lead resulting from the neutralization of wastewaters from battery manufacturing. However, the VSI did not note any signs of contamination or releases (stained soils, stressed vegetation, etc.).

6.4 Ponds (A-D) [2, 17, 24]

A map of ground water contours by Professional Service Industries, Inc. (17) shows four more areas of concern. These areas are labeled as Ponds A, B, C, and D in Figure 8 of their report. During the VSI these areas were dry, and it is assumed that they are simply low areas (probably left over from the mining in the area) which collect rainwater when it storms. These low areas could collect any undetected spills or releases. Therefore, they present areas of possible concern. However, the VSI did not discover any signs which would indicate any contamination (stressed vegetation, stained soils, etc.).

6.5 Drainage Channel (on-site) [13, 29]

There is a drainage channel located just to the east of the plant building which runs basically north/south and eventually connects with the off-site drainage channel. This ditch would collect any overflow or spills from much of the facility grounds and could contain high quantities of lead if any undetected spills or leaks have occurred. The channel would have collected wastes from the ponds if the ponds had ever overflowed. It is known that the facility did not maintain the required 2' of freeboard when the ponds were in operation [13], so overflow may have occurred. The VSI did not discover any signs which would indicate that contamination has occurred (stressed vegetation, stained soils, etc.).

6.6 Acid Spill Area [6]

On November 3, 1980, a pipe to an acid storage tank broke and overflowed the containment area. The overflow collected in a lagoon left by surface mining. The acid spill was neutralized in the lagoon and pumped to the treatment ponds. Soil tests were taken after the treatment was completed to verify the clean-up procedure. These results were provided to the State. No further action was deemed necessary by the facility, and the State required no further action. The estimated quantity of the spill was 7,880 gallons.

6.7 Hose Break Area [6]

A hose break occurred on the pump moving liquid from the ponds to the sanitary sewer during dike refurbishing on April 26, 1984. The quantity of liquid lost was reported to be less than 150 gallons. Analyses (two samples) of the liquid lost showed the pH was in the range of 8.9 to 9.4, and the lead ranged from .19 to .21 ppm. No corrective action was deemed necessary by the facility or required by the State.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This section of the PR/VSI report provides suggested further actions and their reasons for each of the Solid Waste Management Units (SWMUs). Suggested actions and reasons are also provided for the Areas of Concern (AOCs).

7.1 SWMU 1: Wastewater Pipe

Suggested Further Action: The EPA should consider requiring GNB to develop an alternate transfer system. One option could be to install a new pipeline constructed of materials better suited to carry this type of waste stream. The facility should also consider an above ground construction. The area surrounding the existing pipeline should be examined for potential contamination from leaking wastewaters. These items should be addressed as part of an RFI.

Reasons: The design of the pipeline leading from the plant is such that leakage is highly probable. It is constructed of clay, bell and spigot tile. In 1984, a section of the pipe was exposed in an excavation and found to be cracked and a feeder line improperly sealed.

7.2 SWMU 2: Truck Wash Sump

Suggested Further Action: No further action should be taken at this time. Periodic inspections of the unit should be conducted by GNB to check for integrity loss of the walls, seams, and connections.

Reasons: The nature of the unit construction and the amount and concentration of the wastes handled are the basis for these recommendations.

7.3 First Neutralization Pit/Tank

Suggested Further Action: No further action is suggested for this unit.

Reasons: The pit is no longer used to hold waste materials. There are no previous indications of past releases. VSI observations indicated that the pit appeared in sound condition. The pit is presently not being used and is only serving as a secondary containment for the polypropylene mixing tank. The tank appeared to be of sound construction.

7.4 Second Neutralization Pit/Tank

Suggested Further Action: No further action is suggested for this unit.

Reasons: The pit is no longer used to hold waste materials. There are no previous indications of past releases. VSI observations indicated that the pit appeared in sound condition. The pit is presently not being used and is only serving as a secondary containment for the polypropylene mixing tank. The tank appeared to be of sound construction.

7.5 SWMU 5: Pond 1

Suggested Further Action: No further action is suggested for this SWMU at this time.

Reasons: The pond is RCRA regulated, and is currently undergoing closure. All wastes have been removed, and the soils have been tested for contamination. Once closure is completed and certified, there will be a low potential for releases to any medium.

7.6 SWMU 6: Pond 4

Suggested Further Action: No further action is suggested for this SWMU at this time.

Reasons: The pond is RCRA regulated, and is currently undergoing closure. All wastes have been removed, and the soils have been tested for contamination. Once closure is completed and certified, there will be a low potential for releases to any medium.

7.7 SWMU 7: Pond 2

Suggested Further Action: No further action is suggested for this SWMU at this time.

Reasons: The pond is RCRA regulated, and is currently undergoing closure. All wastes have been removed, and the soils have been tested for contamination. Once closure is completed and certified, there will be a low potential for releases to any medium.

7.8 SWMU 8: Pond 3

Suggested Further Action: No further action is suggested for this SWMU at this time.

Reasons: The pond is RCRA regulated, and is currently undergoing closure. All wastes have been removed, and the soils have been tested for contamination. Once closure is completed and certified, there will be a low potential for releases to any medium.

7.9 SWMU 9: Dry Waste Pit

Suggested Further Action: No further action is suggested for this unit at this time.

Reasons: The Dry Waste Pit is included in the closure plan for the ponds. All wastes have been removed and the soils have been tested for contamination. Once closure is completed and certified, there will be a low potential for releases to any medium.

7.10 SWMU 10: Storage Trailer Area

Suggested Further Action: No further action is suggested for this unit at this time. Periodic inspections by GNB are suggested to insure that the trailers do not develop leaks, and the pad is in good condition.

Reasons: The waste materials are enclosed in truck trailers and certain materials (e.g., dust from baghouses, filter cake) are containerized in 55-gallon drums. The area is paved and appeared to be in good condition during the VSI.

7.11 SWMU 11: Dumpster Area 1

Suggested Further Action: No further action is suggested for this unit at this time.

Reasons: The area is paved and protected by a lean-to shed. The dumpster was properly labeled and lined during the VSI.

7.12 SWMU 12: Dumpster Area 2

Suggested Further Action: No further action is suggested for this unit at this time.

Reasons: Only non-hazardous waste materials (wood pallets) were disposed of in this unit. The area is paved.

7.13 SWMU 13: Dumpster Area 3

Suggested Further Action: No further action is suggested for this unit at this time.

Reasons: The area is used for the disposal of office and lunchroom wastes. These materials are non-hazardous. The dumpster is connected to a compactor and is, therefore, enclosed.

7.14 SWMU 14: Baghouse 1 (casting)

Suggested Further Action: No further action is suggested for this unit at this time. Periodic inspections will insure that this unit continues to operate without fugitive emissions to the workplace.

Reasons: The unit is located outside the facility building. The area is paved. There is no history of operational problems with this unit.

7.15 SWMU 15: Baghouse 2 (vacuum)

Suggested Further Action: No further action is suggested for this unit at this time. periodic inspections will insure that this unit continues to operate without fugitive emissions to the workplace.

Reasons: The unit is located inside the facility building. The floors are all concrete. All floor drains are connected to the WWT system.

7.16 SWMU 16: Baghouse 3 (assembly)

Suggested Further Action: No further action is suggested for this unit at this time. Periodic inspections will insure that this unit continues to operate without fugitive emissions to the workplace.

Reasons: The unit is located inside the facility building. The floors are all concrete. All floor drains are connected to the WWT system.

7.17 SWMU 17: Indoor WWT

Suggested Further Action: No further actions recommended at this time. (Knowledge of process information is limited due to facility involvement with patent acquisition.)

Reasons: Outfall of excess treated wastewater to POTW is monitored. Other waters are recirculated back into plant processes. Leakage or spills within the plant would be collected by floor drains and routed back through the WWT system.

7.18 AOC: Low Area (east)

Suggested Further Action: No further action is suggested at this time.

Reasons: There is no evidence of contamination of this area. The major source of potential contamination has been removed (Ponds and Dry Waste Pit).

7.19 AOC: Low Area (west)

Suggested Further Action: No further action is suggested at this time.

Reasons: There is no evidence of contamination of this area. The major source of potential contamination has been removed (Ponds 1-4 and Dry Waste Pit).

7.20 AOC: Off-site Drainage Ditch

Suggested Further Action: No further action is suggested at this time.

Reasons: The ditch will have little potential for contamination from the facility based on the closure of Ponds 1-4 and the Dry Waste Pit.

7.21 AOC: Ponds A-D

Suggested Further Action: No Further action is suggested at this time.

Reasons: These areas are remanents of mining activities and were never associated with facility processes.

7.22 AOC: Acid Spill Area

Suggested Further Action: No further action is suggested at this time.

Reasons: The spill was cleaned-up at the time of occurrence. A report and data were supplied to the State. The State did not proceed with any action.

7.23 AOC: Hose Break Area

Suggested Further Action: No further action is suggested at this time.

Reasons: The amount of material released was small (150 gallons) and the situation was adequately addressed at that time.

8.0 REFERENCES

1. Texas Department of Water Resources. Interoffice Memorandum from Christopher Swan, Environmental Quality Specialist, District 4, to Bryan Dixon, P.E., Chief, Solid Waste and Spill Response Section, May 29, 1985.

2. Texas Water Commission. Comprehensive GW Monitoring Evaluation (CME) Report, GNB Batteries, Inc., Farmers Branch, Texas, May 23, 1986.

3. GNB Incorporated, Automotive Battery Division. Letter from E. C. Milton, Manager, Environmental Engineering, to Allan Seils, Texas Water Commission, Technical Support Unit, April 9, 1987.

4. United States Environmental Agency, Region VI. Letter from David Cohen, Attorney, Office of Regional Counsel, to Robert Wilson, Esq., McGinnis, Lockridge & Kilgore, July 30, 1985.

5. GNB Incorporated. Hazardous Waste Management Plan, Volume II, Section II (All Locations), Sampling and Testing Manual, April 1, 1984.

6. GNB Batteries Incorporated, Automotive Battery Division. Hazardous Waste Management Plan, Volume II, Section II (Farmers Branch, Texas), Operating Record, January 11, 1984.

7. Environmental Protection Agency. Notification of Hazardous Waste Activity, Gould Inc., August 14, 1980.

8. Texas Department Of Water Resources. Interoffice Memorandum from Charles D. Gill, P.E., Supervisor, District 4, to Gary D. Schroeder, P.E., Chief, Solid Waste and Spill Response Section, November 9, 1982.

9. Texas Department Of Water Resources. Interoffice Memorandum from Don C. Eubank, Environmental Quality Specialist, District 4, to Gary D. Schroeder, P.E., Chief, Solid Waste and Spill Response Section, September 27, 1983.

10. GNB Incorporated. Hazardous Waste Management Plan, Volume II, Section II (Frisco, Texas) Appendix E - Exhibit 6 - Closure Plan, April 1, 1984.

11. GNB Inc., Automotive Battery Division. Memorandum from E. C. Milton, Manager, Facilities Engineering, to Texas Hazardous Waste Management File, Report. Vol. II, Sec. II, Appendix C, Exhibit 1, Subject: Incident/Spill Report - January 21, 1984.

12. GNB Inc., Automotive Battery Division. Letter (Certified Mail P291 847 615) from E. C. Milton, Manager, Facilities Engineering to Mr. Charles E. Nemir, Executive Director, Texas Department of Water Resources, October 22, 1985.

13. Texas Department of Water Resources. Interoffice Memorandum from Jenny Gredell Menard, Environmental Quality Specialist, District 4, to Bryan Dixon, Acting Section Chief, Solid Waste and Spill Response Section, April 20, 1984.

14. GNB Inc. Office Memorandum from D. W. Groff, to E.C. Milton, Manager, Facilities Engineering, Subject: Neutralization Sump Liner at Dallas, March 30, 1984.

15. Waste Management, Inc. Generator's Waste Material Profile Report (Generator: GNB Batteries, Inc.), June 26, 1984.

16. Texas Water Commission. Letter to E. C. Milton of GNB from Bryan W. Dixon, May 22, 1986. Facility says this letter was never received.

17. Professional Service Industries, Inc., National Soil Services Division. Groundwater Elevations Report, GNB Batteries, Inc., Farmers Branch, Texas, November, 1984.

18. United States Department of Agriculture, Soil Conservation Service in cooperation with Texas Agricultural Experiment Station, soil survey of Dallas County, Texas.

19. Telephone call between Dr. Mittelhauser of Mittelhauser Corp. and David Maiefski of EPA Region VI, July 7, 1987.

20. Telephone call between Dr. Mittelhauser of Mittelhauser Corp. and Charles Mauk of the Texas Water Commission, July 7, 1987.

21. Telephone call between Dr. Mittelhauser of Mittelhauser Corp. and Bill Backus of GNB Incorporated, July 9, 1987.

22. Closure (and Post-Closure) Plan (for Surface Impoundments), originally dated January 11, 1984, last modified March 14, 1986. Prepared by GNB Incorporated.

23. County and City Data Book 1983 , U.S. Department of Commerce, Bureau of the Census (updated every 5 years).

24. USGS map of the Carrollton Quadrangle, Texas. 7.5 minute series (topographic). 1959, photorevised in 1981.

25. GNB Incorporated, November 4, 1984. Hazardous Waste Management Plan, Volume IV, Section III, Subsection 6: Analysis for reclassification of Chemfixed waste at Farmers Branch facility.

26. Telephone log of conversation between Jeff Leifer of Mittelhauser Corporation and Nola Bauer, Secretary for Utilities, City of Farmers Branch, Utilities Department.

27. Telephone log of conversation between Jeff Leifer of Mittelhauser Corporation and Steve Lindley, Public Information Representative, Dallas Water Utilities.

28. Groundwater monitoring results provided to Mittelhauser Corporation on August 6, 1987 by E.C. Milton of GNB Incorporated. Information provided by GNB included individual papers of reports submitted to the Texas Department of Water Resources.

29. Visual Site Inspection of July 17, 1987.

30. Telephone conversation between Dr. Mittelhauser of Mittelhauser Corporation, and Everett C. Milton of GNB, August 25, 1987.

PA-SCORE
REFERENCE 2

RECORD OF COMMUNICATION

Reference 2

TYPE:	Telephone Call	**DATE:**	2/4/93	**TIME:**	1035
TO:	William Backus, Environmental Engineer, GNB, Inc. (214) 243-1011	**FROM:**	B. Kendrick, Geologist, ICF Technology, Inc. (214) 979-3905		

SUBJECT: Additional Information Concerning GNB, Inc.

SUMMARY OF COMMUNICATION:

Mr. Backus stated that GNB owns a total of 43 acres for the plant located in Farmers Branch. He also stated that the actual facility covers 10 acres.

Mr. Backus stated that there are an average of 340 workers at the facility.

The facility is completely fenced with an on-duty guard 24 hours a day. The area where the impoundments were located is not currently fenced, but was fenced during their operation.

Mr. Backus stated that a letter of clean closure for the impoundments has not been received from either the Texas Water Commission (TWC) or from the EPA. He also stated that GNB is in the final stages of closure of the impoundments which would meet certification under TWC and EPA regulations.

PA-SCORE

REFERENCE 3

Lovell

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VI
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

October 14, 1988

MEMORANDUM

SUBJECT: Transmittal of RCRA Facility Assessment Evaluation

FROM: Bill Luthans
Technical Section (6H-CT)

TO: William K. Honker, Chief
Permits Section (6H-CP)

Attached please find a copy of the following RCRA Facility Assessment Evaluation:

° Facility Name: GNB Incorporated

° EPA ID Number: [redacted] III

Please advise us if more information is required and/or if you need further assistance.

Attachment

cc: Sam Becker (6H-C)

RCRA FACILITY ASSESSMENT SUMMARY

PRELIMINARY REVIEW AND VISUAL SITE INSPECTION

Region VI, Technical Compliance Section

FACILITY'S NAME(S): GNB Incorporated

EPA ID NUMBER: TXD007331879

ADDRESS: 1880 Valley View Lane, Farmers Branch, Texas 75234

LOCATION: 1.25 Miles West of I35E on Valley View Lane.

SITE DESCRIPTION: Automotive lead/acid storage battery manufacturing facility

DATE OF INSPECTION: July 17, 1987 VSI CONDUCTED BY: Mittelhauser Corp.

PREPARED BY: A.T. Kearney, Inc./ Mittelhauser Corp. DATE PREPARED: 8/87 - 10/87

REVIEWED BY: Van R. Cammack DATE REVIEWED: 4/11/88 - 8/29/88

FACILITY STATUS: Operating - LD Closure CLOSURE PLAN APPROVED DATE: 12/1/87

ANY ON-GOING STATE/FED 264, 265, OR 270 CORRECTIVE ACTION OR CERCLA ACTION:

State issued compliance order in 1984 for groundwater assessment plan.
Closure of Surface Impoundments (Ponds 1-4) and dry waste pit pending.

DOES FACILITY HAVE A CERCLA FILE? YES _____ NO X

DOES FACILITY HAVE UIC WELL? YES _____ NO X

TYPE OF DRINKING WATER SUPPLY WITHIN A 3-MILE RADIUS:

Dallas, Texas; Surface Water Impoundments.

TARGET POPULATION WITHIN A 3-MILE RADIUS:

Within incorporated area of Farmers Branch having population of about 25000.

RECOMMENDATIONS: X R.F.I. _____ I.M. _____ No Further Action under RFA

(Indicate only one unless I.M. is marked)

_____ 3004(u) _____ 3007

Possible Enforcement Action: _____ 3008(a) X 3008(h)

I. EVALUATION

A. NUMBER OF SWMU(s)/AOC(s) INVESTIGATED DURING THE PR/VSI: 17 SWMUs + 7 AOCs

1. NUMBER OF SWMU(s) INVESTIGATED DURING PR/VSI: 17

SWMU NO.	LIST OF SWMU(s)	REGULATED BY RCRA* (SUBTITLE C)	STATUS**
1	Wastewater Pipe	N	A
2	Truck Wash Sump	N	A
3	First Neutralization Pit/Tank	Y	A
4	Second Neutralization Pit/Tank	Y	A
5	Pond 1	Y	C
6	Pond 4	Y	C
7	Pond 2	Y	C
8	Pond 3	Y	C
9	Dry Waste Pit	Y	C
10	Storage Trailer Area	N	A
11	Dumpster Area 1	N	A
12	Dumpster Area 2	N	A
13	Dumpster Area 3	N	A
14	Baghouse 1 (Casting)	N	A
15	Baghouse 2 (Vacuum)	N	A
16	Baghouse 3 (Assembly)	N	A
17	Indoor WWT	N	A

*Y-Yes, N-No
**Active, Inactive, Closed (A,I,&C)

2. AREAS(s) OF CONCERN: 7

LIST OF AOC(s):

AOC 1 Low Area (East)
AOC 2 Low Area (West)
AOC 3 Off-site Drainage Ditch
AOC 4 Ponds (A-D)
AOC 5 On-site Drainage Ditch
AOC 6 Acid Spill Area
AOC 7 Hose Break Area

B. SAMPLING VISIT - 7/20/87

SWMU OR AOC SAMPLING LOCATION	SAMPLE/MEDIA SAMPLE TYPE (GRAB.COMPOSITE)	PARAMETERS	RESULTS mg/kg Pb	Cd	Sulfates
AOC 5 - Onsite Drainage Ditch (D-1)	Soil/Grab	Pb,Cd,Sulfates	8650	6.1	8360
SWMU 9 Dry Waste Pit (WP-1)	Sediment/Composite	Pb,Cd,Sulfates	392	2.7U	19700
SWMU 9 Dry Waste Pit (WP-2) Dup. of (WP-1)	Sediment/Composite	Pb,Cd,Sulfates	323	2.7U	9170
Background (BKG)	Soil/Grab	Pb,Cd,Sulfates	37	2.1U	547
Equipment Blank	Water/Grab	Pb,Cd,Sulfates	5U	4U	3U

"U" indicates element was analyzed for but not detected.

C. NUMBER SWMU TO BE INCLUDED IN THE RFI: 1 SWMU + 1 AOC
(Except RCRA units subject to Subpart F refer to Section D)

1. NUMBER OF SWMU/AOC AT WHICH RELEASES HAVE BEEN IDENTIFIED: 1

AOC NO.	LIST OF SWMU	RELEASE TO	NOTED DOCUMENTATION OF RELEASE
5	Onsite Drainage Ditch	Soil/G.W.	Drainage channel just east of the plant building. Would collect overflow or spills from facility grounds. Soil sample taken during SV indicated high lead level (8650 mg/kg).

2. NUMBER OF SWMU AT WHICH A RELEASE IS HIGHLY POSSIBLE: 1

SWMU NO.	LIST OF SWMU	MEDIA	RATIONALE
1	Wastewater Pipe	Soil/G.W.	Clay tile drain line of bell & spigot design and buried under concrete. All facility flow drains empty into this line. Crack found in pipe 1/24/84 while installing a valve. No visible signs of release. Acid-water and D008 waste managed. Operated 1972-present.

3. NUMBER OF SWMU WHERE A DETERMINATION OF RELEASE CAN NOT BE MADE DUE TO LACK OF INFORMATION: 0

D. NUMBER OF SWMU FOR WHICH AN RFI IS NOT RECOMMENDED: 9 SWMUs/6 AOCS

SWMU NO.	LIST OF SWMU	RATIONALE
2	Truck Wash Sump	Reinforced concrete collection sump catching washwater from truck trailers and plant maintenance. No visible signs of release. Unit in good condition.
10	Storage Trailer Area	Reinforced concrete pad used as truck dock, good condition, no evidence of cracks. Three semi-trailers for storing mispunched plastic battery casings, drums of recyclable lead materials, junk batteries. No visible signs of releases.
11	Dumpster Area 1	Plastic lined, 30-cubic yard dumpster on concrete pad, under aluminum lean-to. Stores hazardous waste from within plant such as gloves clothing, pipes. Stored less than 90 days. No documented releases.
12	Dumpster Area 2	Dumpster sets on concrete paved area. Stores non-hazardous, broken-wood refuse. No documented releases.
13	Dumpster Area 3	Dumpster sets on reinforced concrete pad. Stores non-hazardous office waste after compaction.
14	Baghouse 1	Baghouse standing about 25' high mounted on steel legs. Collects dust produced during casting process of battery manufacture. Dust contains lead (D008). No history of releases.
15	Baghouse 2	Baghouse located inside facility building on concrete floor. Fed by various hand vacuums along assembly line. Dust classified D008 wastes. No documented releases.
16	Baghouse 3	Baghouse located inside facility building. Concerns same as Baghouse 2 (SWMU 15).

SWMU NO.	LIST OF SWMU	RATIONALE
17	Indoor Wastewater Treatment (WWT)	Unit sets inside plant building. Receives effluent from first neutralization tank (SWMU 3) via underground pipe (Encased). Patent pending and personnel would not discuss unit. No documented releases.
AOC 1	Low Area (East)	Retention basin (presumably) to catch rainwater. Lower than facility impoundments and could catch spills or leaks from Eastern part of facility. No signs of contamination or releases.
AOC 2	Low Area (West)	Low area West of facility that could catch water from facility if dry waste pit ever overflowed from flooding. No signs of contamination or releases.
AOC 3	Offsite Drainage Ditch	Drainage channel just south of company border, near facility ponds. Pond overflow could release D008 waste to ditch. No indications of releases.
AOC 4	Ponds (A-D)	Low areas left over from sand & gravel mining in area. Never associated with facility processes.
AOC 6	Acid Spill Area	Lagoon left by surface mining. Caught overflow from acid spill from break in storage Tank on 11/3/80. Spill was neutralized. Soil samples sent to State. No further action required by State.
AOC 7	Hose Break Area	Hose broke 4/26/84 while moving liquid from ponds to sanitary sewer. About 150 gal lost, having pH in range 8.9 - 9.4 and lead of 0.19 - 0.21 ppm. No action taken.

E. SUPPLEMENTAL INFORMATION ON RCRA REGULATED UNITS: 7
(Describe any problems identified or suspected from regulated units including identified releases to groundwater)

SWMU NO.	LIST OF SWMU	CONCERNS
3	First Neutralization Pit/Tank	This is a concrete pit, partially underground, which received wastewaters from plant floor, truck drain and plant process prior to May 1985 when a polypropelene tank was installed inside the pit. The pit now serves as secondary containment. Wastes are treated with $CaCO_3$ for neutralization. Pit operated from 1972-1985, Tank since then. Pit and Tank appear to be in good condition. No releases have occurred.
4	Second Neutralization Pit/Tank	Receives effluent from first Pit/Tank and discharges into Pond system. Otherwise same as first Pit/Tank. No releases have occurred.
5	Pond 1	One of four unlined surface impoundments. About 135'x 89'x 12' deep. Received neutralized acid water from second Pit (SWMU 4). Solids settled in Pond 1. Contaminants included calcium sulfate and lead. A bentonite slurry wall surrounding all four Pits was installed in May 1976. High sulfate and lead levels were detected in monitoring wells outside the wall in 1982. Monitoring in 1986 & 1987 did not indicate lead contamination but high sulfates were still present with no apparant decrease indicated. No releases have been reported. Use of the pond was terminated in May 1985. Materials were removed to a depth sufficient to attain background levels of contaminating substances, refilled with clean soils and revegetated. The facility has been trying to clean closed this unit at this time, GNB has submitted the closure certification to TWC.

SWMU NO.	LIST OF SWMU	CONCERNS
6	Pond 4	Unlined surface impoundment about 126'x 50'x 12' deep. Hydraulically connected with Pond 1 via permeable dike. Not used since May 1985. Concerns and closure process same as pond 1 (SWMU 5).
7	Pond 2	Unlined surface impoundment 140'x 105'x 12' deep. Hydraulically connected with Pond 3 via permeable dike. Received effluent from second Pit (SWMU 4). See concerns for Pond 1 (SWMU 5). Not used since May 1985. Concerns and closure process same as pond 1 (SWMU 5).
8	Pond 3	Unlined surface impoundment 131'x 48'x 12' deep. Hydraulically connected with Pond 2 (SWMU 7) via permeable dike. Not used since May 1985. Concerns same as Pond 1 (SWMU 5).
9	Dry Waste Pit	Unlined, earthern pit about 4' deep. Class II waste stored and later moved. Pit ceased operation in 1985. Closure is pending. Soil samples indicate high lead concentration. See sampling visit (Section C, this report). Pit closed in same manner and process as Pond 1 (SWMU 5).

II. FINDINGS

A. RECOMMENDATIONS: (EPA, STATE and/or CONTRACTOR)

EPA recommends the following units be included in an RFI:

SWMU No. 1 Wastewater Pipe

AOC 5 - On-site Drainage Ditch

Contractor

The contractor recommends that EPA consider requiring GNB, Inc., to develop an alternate transfer system to replace the wastewater pipe (SWMU 1) with pipeline constructed of more suitable material. They recommend additional information on SWMUs 5,6,7 & 8 (Ponds 1-4) be submitted by GNB to confirm that contaminated materials have been removed and further that additional soil samples be taken on SWMU 9 (Dry Waste Pit) and AOC 5 (On-Site Drainage Ditch) to determine further action. However, since contractor's report was received, it was learned by phone conversation with Richard Clark, TWC, Ducanville, TX., that SWMUs 5, 6, 7, 8, & 9 seems to be clean closing under State authority. Waste material and soil was removed to a depth sufficient to attain background levels of contaminants, units were then filled with clean soil and revegetated.

B. ADDITIONAL COMMENTS:

This facility was originally used by Morton Foods in manufacturing and packaging pickled food products. Gould, Inc., purchased the facility in 1971 for manufacturing batteries and sold it to GNB, Inc., in 1984 who continued to use it for battery manufacture. The primary contaminants in the process are acid and lead. The facility contained four unlined surface impoundments and a dry waste pile that was used until May 1985. The impoundments received neutralized wastewater containing high levels of sulfate and lead.

The impoundments began operation on May 15, 1972. Ponds 1 and 2 received treated wastewater from the neutralization pits. Solids were allowed to settle and wastewater flowed into Ponds 3 and 4 and on into the sanitary sewer. Sludge was removed from ponds 1 and 2, chemically fixed and stored in the Dry Waste Pit until 1982 and eventually shipped offsite for disposal. A slurry wall was placed around the impoundments in May 1976. However, its integrity is questionable since a compliance order was issued by the State in 1984 requiring development of a groundwater assessment plan because monitoring via five monitoring wells outside the wall had indicated 0.09 and 0.15 mg/l of lead and sulfate in 1982. High lead was no longer indicated by monitoring in 1986 and 1987 but sulfate remained high with no apparent decline.

Groundwater flow direction is to the southeast and extensive surface mining of sand and gravel has occurred to the South. It is therefore possible that contaminated water could cause seeps and springs in the area.

To address these and perhaps other issues, the facility is trying to close the ponds and the pit (SWMUs 5-9) under State authority. The units were excavated to a depth sufficient to remove all contamination to a background level, filled with clean soil and revegetated. The closure process has been completed and certified by the facility according to Richard Clark, TWC, Duncanville, TX.

CONCUR: Lydia M. Boada-Clista DATE: 10/7/88

PA-SCORE

REFERENCE 4

MAJOR

0484

TEXAS DEPARTMENT OF WATER RESOURCES
Industrial Solid Waste Disposal Compliance Monitoring Inspection

Inspection Cover Sheet (see reverse side for checklist use and general instructions)

Compliant _____ Texas Permit/Reg. No. 31697

Noncompliant ✓ EPA I.D. No. TXD077133187

Site Operator Information:

Name of Company Gould, Inc. ⇔ (GNB Batteries, Inc.)

Company's Address 1880 Valley View Lane, Farmers Branch, Texas 752

Phone No. (214) 243-1011

Site Address see above

Phone No. see above County Dallas

Type of Industry manufacture batteries

Indicate below Classes of Waste managed (Hazardous-H, Class I nonhazardous-NH, Class II-II

Generator H, II Transporter _____ Small Quantity Generator _____

Treatment H Disposal _____ Storage H ; 90 Day Exemption _____

Site Information (T.S.D. facilities only)

1. Are facilities located outside the 100 year flood plain area? yes

* 2. Describe land use within one mile industrial

3. Closed or abandoned facilities none

Inspection Information:

1. Inspector's Name & Title Jenny Gradell, Environmental Quality Specialist

2. Inspection Date February 29, 1984; April 11, 1984

3. Inspection Participants Mr. William Bickus, Mr. Everett Milton

Approved: _____ District Supervisor Signed: Jenny Gradell Menard Inspector

Date: April 20, 1984

Revised 10/1/82 - FFY 1983

CONTENTS

Facility Name Gould (GNB Batteries), Inc. Reg. # 31697

✓ 1. CM&E Code Sheet 0814
✓ IA Memo
✓ 2. Contents Sheet (if included)

✓ 3. Major Group I Checklist or Non Major Checklist

✓ 4. *Facility Checklists

N/A A. Landfills

✓ B. Surface Impoundments

N/A C. Land Treatment

✓ D. Tanks

N/A E. Chemical, Physical, Biological Treatment*

N/A F. Waste Piles

N/A G. Incinerators

N/A H. Thermal Treatment

✓ 5. Closure and Post-Closure Compliance Review Checklist

** 6. Ground Water Monitoring Program Checklist

✓ 7. Financial Assurance, Closure and Post Closure Worksheet

✓ 8. Major Facilities Status Sheet (Not Required for Non Majors)

N/A 9. Generator/Facility/Transporter (GFT) Status (Not Required for Majors)

* If a Required Checklist is Omitted, Explain Below:

*Treatment occurs in tanks (See Tanks checklist)

**Groundwater monitoring program is currently being reviewed by Karen Hacker as part of a previous referral to Austin.

COMPLIANCE MONITORING INSPECTION REPORT
Generators Checklist

Section A - Hazardous Waste Determination 335.6(e) and 335.62

1. A determination has been made that the solid waste(s) generated is either hazardous or non-hazardous. Yes ✓ No ___

2. If the answer to #1 is yes, check the method used for determination:

   a. Listed as a hazardous waste in Title 40 CFR Part 261, Subpart D _____.

   b. Process or materials knowledge _____.

   c. Tested for characteristics as identified in Title 40 CFR Part 261, Subpart C ✓ .
   (If equivalent test method used, attach a copy)

3. The following wastes, if generated, have been tested to determine nonhazardous characteristics:

   a. Class I nonhazardous — Yes ___ No ___ N/A ✓

   b. Class II — Yes ___ No ___ N/A ✓

   c. PCB (storage) — Yes ___ No ___ N/A ✓

   If no, list on the comments sheet those wastes deemed nonhazardous or processes from which non-hazardous waste was produced.

4. If [illegible] waste stream changes are [illegible] — Yes ✓ No ___ N/A ___

Section B - [illegible] 335.75

1. [illegible] received from or transported [illegible] hazardous waste [illegible] been filled when [illegible] Records of TSDF requirement [illegible] — Yes ___ No ___ N/A ✓

   [illegible] signed by [illegible] — Yes ___ No ___ N/A ✓

   [illegible] carried out of [illegible] signed by the generator — Yes ___ No ___ N/A ✓

[illegible]
Released [illegible]

Section C - Record Keeping and Reports 335.9 and 335.70-...

1. Generator maintains the required records and reports for 3 years. Yes___ No ✓
   white copies not on-site monthly reports not submitted
   ___At the facility
   ___Elsewhere (note location in comments sheet)

2. Disposal methods described in the registration agree with actual situation [335.6(b)]. Yes ✓ No___

3. Spills or unauthorized discharges are reported as required (335.453). delayed reporting of 1/28/84 spill Yes___ No ✓ N/A___

DO NOT COMPLETE SECTION D IF GENERATOR DISPOSES OF HAZARDOUS AND/OR NONHAZARDOUS WASTE ON-SITE ONLY.

Section D - Pretransport and Manifest Requirements 335.65-.69

1. Identify primary off-site disposal facility(s). Use comments sheet or add registration waste list properly annotated. Collins - waste 003

2. TDWR manifest shipping control ticket is properly completed. Yes ✓ No___ N/A___

3. Generator receives return (white) copy of shipping control ticket. Yes___ No ✓ N/A___

4. Generator is familiar with DOT packaging requirements identified in Title 49 CFR Parts 173, 178 and 179. Yes ✓ No___

5. Containers used to temporarily store waste before transport meet the DOT packaging requirements of Title 49 CFR Parts 173, 178 and 179. Yes___ No___ N/A

6. Generator labels and marks each package in accordance with Title 49 CFR Part 172. Yes___ No___ N/A
   but ship with

7. Each container of 110 gallons or less is marked with the required hazardous waste warning label. Yes___ No___ N/A ✓

8. Hazardous wastes are accumulated for more than 90 days and the generator (is/will be) a permitted storage facility. Yes ✓ No___ N/A___

9. Generator inspects containers for leakage or corrosion at least weekly (335.245). Yes___ No___ N/A

10. If leaking or bulging container is found, operator transfers waste into a usable container properly lined not to react with the waste. Yes___ No___ N/A ✓

11. Generator locates containers holding ignitable or reactive waste at least 15 meters (50 feet) from the facility's property line (335.246). Yes___ No___ N/A ✓

12. Containers holding incompatible wastes are kept apart by physical barrier or sufficient distance (335.118). Yes___ No___ N/A ✓

NOTE: If tanks are used, complete checklist for tanks.

13. Storage area has containment protection as set forth in Title 40 CFR Part 264.175, Use and Management of Containers. Yes___ No[1]___ N/A

NOTE 1: This will be a future permit requirement.

14. Describe drum or container storage area. Use photos and/or comments sheet. N/A

C. LIANCE MONITORING INSPECTION R RT
Facilities Checklist
TAC 335.111-.118

Section A - General Facility Standards

1. Proof of deed recordation of on-site disposal facilities has been provided to the agency. Yes ✓ No ___ N/A ___

2. A sketch of facilities, general site orientation showing landfills, surface impoundments, injection wells, drainage routes, water bodies/courses and other pertinent features (separate sketch or diagram of landfill(s) etc.) should be attached to this and other facility checklist(s). see attached diagram

NOTE: For all nonhazardous and noncommercial facilities do not complete the remainder of this Facilities Checklist. Proceed to specific type facility checklists and complete one checklist for each disposal facility or multi-comments on a single checklist.

Section B - Waste Analysis 335.114

1. Facility has a waste analysis plan. Yes ___ No ✓

2. Waste plan is maintained at the facility. Yes ___ No ✓

3. Waste plan includes the following:

   a. Parameters for which each waste will be analyzed. Yes ___ No ✓

   b. Test methods used to test for these parameters. Yes ___ No ✓

   c. Sampling method used to obtain sample. Yes ___ No ✓

   d. Frequency with which the initial analysis will be reviewed or repeated. Yes ___ No ✓

      NOTE: Frequency includes requirement to repeat whenever waste stream or process(es) is changed.

   *e. Waste analyses that generators have agreed to supply. Yes ___ No ___ N/A ✓

   *f. Procedures which are used to inspect and analyze each movement of hazardous waste including:

      (1) Procedures to be used to determine the identity of each movement of waste. Yes ___ No ✓ N/A ___

      (2) Sampling method to be used to obtain representative sample of the waste to be identified. Yes ___ No ✓ N/A ___

*Note: Applies to off-site commercial facilities only

4. The facility provid adequate security (335.115). Yes ✓ No ___

a. ✓ 24-hour surveillance system (e.g. television monitoring or guards).

OR

b. ✓ Artificial or natural barrier around facility (e.g. fence or fence and cliff).

Describe fence

c. ✓ Means to control entry through entrances (e.g. attendant, television monitors, locked entrance, controlled roadway access).

Describe guards at entrance

5. Facility has a sign with the legend "Danger - Unauthorized Personnel Keep Out". Yes ✓ No ___ N/A ___

Section C - General Inspection Requirements 335.116

1. Facility has a written inspection schedule (and plan). Yes ✓ No ___

✓ Plan is maintained at the facility
___ Elsewhere (note location in comments sheet)

2. Inspection schedule (plan) provides for inspecting the following:

a. Monitoring equipment. Yes ✓ No ___

b. Safety and emergency equipment. Yes ✓ No ___

c. Security devices. Yes ✓ No ___

d. Operating and structural equipment. Yes ✓ No ___

3. Schedule or plan identifies the types of problems to be looked for during inspection:

a. Malfunctions and deterioration. Yes ✓ No ___

b. Operator error. Yes ✓ No ___

c. Discharge or threat of discharge. Yes ✓ No ___

4. The owner/operator maintains an inspection log which includes:

a. Date and time of inspection. Yes ✓ No ___

b. Name of inspector. Yes ✓ No ___

c. Notation of observations. Yes ✓ No ___

d. Date and nature of repairs or remedial action. Yes ✓ No ___

5. Malfunctions or other deficiencies noted in the inspection log have been rectified. Yes ___ No ___ N/A ✓

6. Inspection log records are maintained for 3 years. Yes ✓ No ___

Section D - Personnel Training 335.117

1. Owner/operator maintains Personnel Training Records at the facility. Yes ✓ No ___

2. Personnel Training Records include:

a. Job Title and written job description of each position. Yes ✓ No ___

b. Description of type and amount of training. Yes ✓ No ___

c. Records of training given to facility personnel. Yes ✓ No ___

3. Personnel Training Records are maintained for the appropriate length of time. Yes ✓ No ___

Section E - Requirements for Ignitable, Reactive or Incompatible Waste 335.118

1. Owner/operator is familiar with proper separation and safeguards needed to prevent ignition or reaction of ignitable or reactive waste. Yes ___ No ___ N/A

a. Use comments sheet to describe separation and confinement procedures.

b. Use comments sheet to describe any potential sources of ignition or reaction.

2. Smoking and open flame are confined to specifically designated locations. Yes ___ No ___ N/A

3. "No Smoking" signs are posted in hazardous areas. Yes ___ No ___ N/A

Section F - Preparedness and Prevention 335.131-.137

1. Describe any evidence of fire, explosion, or contamination of the environment in the comments sheet.

2. Facility is equipped with:

   a. Internal communication or alarm system within easy access. Yes ✓ No ___ N/A ___

   b. Telephone or two-way radio to call emergency response personnel. Yes ✓ No ___ N/A ___

   c. Portable fire extinguishers, fire control equipment, spill control equipment and decontamination equipment tested regularly to assure proper operation. Yes ✓ No ___ N/A ___

   d. Water volume adequate for hoses, sprinklers or water spray system. Yes ✓ No ___ N/A ___

3. Aisle space is sufficient to allow unobstructed movement of personnel and equipment. Yes ✓ No ___ N/A ___

4. Owner/operator has attempted to make arrangements with the local hospitals to familiarize them with the layout of the facility, properties of hazardous waste handled and associated hazards, places where facility personnel would normally be working, entrances to roads inside facility, and possible evacuation routes. Yes ✓ No ___ N/A ___

5. In the case that more than one police and fire department might respond, a primary authority has been designated. Yes ___ No ___ N/A ✓

6. Owner/operator has attempted to make agreements with State emergency response teams, emergency response contractors and equipment suppliers. Yes ✓ No ___ N/A ___

7. Owner/operator has attempted to make arrangements with local hospitals to familiarize them with the properties of hazardous waste handled and types of injuries that could result from fires, explosions, or releases at the facility. Yes ✓ No ___ N/A ___

8. State or local authorities have entered into the necessary arrangements. Yes ✓ No ___ N/A ___

9. State or local authorities have declined arrangements. Yes ___ No ___ N/A ✓

Section G - Contingency Plan and Emergency Procedures 335.151-.157

1. A contingency plan is maintained at the facility. Yes ✓ No ___

2. Contingency plan is: a. a revised SPCC Plan ___
   b. a separate document ✓
   c. adequate to meet emergency procedures requirements Yes ✓ No ___

3. Emergency coordinator is on-site or on call at all times. Yes ✓ No ___

Section H - Manifest System, Recordkeeping and Reporting 335.171-.177

1. Owner/operator complies with manifest requirements. Yes ✓ No ___ N/A ___

   NOTE: If 1 is N/A, go to question 6 below.

2. Waste received from a rail or water (bulk shipment) transporter are accompanied by a properly executed shipping paper. Yes ___ No ___ N/A ✓

3. All shipments of waste received have been consistent with the manifest. Yes ___ No ___ N/A

4. Unmanifested waste was reported to the Executive Director [335.15(b)]. Yes ___ No ___ N/A ✓

5. Discrepancies have been reconciled with the generator and transporter. Yes ___ No ___ N/A ✓

6. Owner/operator keeps a written operating record at the facility. Yes ___ No ✓

7. Operating record reflects the following:

   a. Description, quantity of each hazardous waste received and method(s) and date of T.S.D. at the facility. Yes ___ No ✓

   b. Location and quantity of each hazardous waste within the facility (for disposal facilities, quantity on a map or diagram of each cell or disposal area, for all facilities cross-reference to shipping ticket Nos.). Yes ___ No ✓

   c. Records and results of waste analyses and trial tests. Yes ___ No ✓

   d. Summary Reports of all incidents that require implementing the contingency plan. Yes ___ No ✓

   e. Closure cost estimates for all facilities (335.232). Yes ___ No ✓

   f. Post closure cost estimates for disposal facilities (335.233). Yes ___ No ___ N/A ✓

8. Owner/operator maintains an adequate closure plan for all facilities. Yes___ No ✓ N/A___

9. Owner/operator maintains an adequate post closure plan for disposal facilities. Yes___ No___ N/A ✓

10. If the owner/operator is required to furnish financial assurance (owner/operator of a hazardous waste treatment, storage or disposal facility),

What is the estimated closure cost?

no estimate ($1 million for inadequate closure plan)

What is the estimated post closure cost?

no estimate

11. Closure (and post closure) costs have been properly adjusted for inflation. Yes___ No ✓

12. Owner/operator established financial assurance for "current" closure (and post closure) cost(s) with TDWR by July 6, 1982. Yes___ No ✓

a. If no, but financial assurance was established at a later date, specify when:

no adequate closure assurance (inadequate financial test information)

b. Specify the method(s) of assurance of financial responsibility for these costs:

Liability Coverage Requirements
40 CFR 265.147

1. Facility owner/operator had sudden accidental coverage (1 million per occurrence with annual aggregate of 2 million) demonstrated by July 15, 1982. Yes___ No ✓ N/A___

a. If no, but sudden coverage was established at a later date, specify when:

no coverage

b. Specify the method(s) of liability coverage and amount(s) demonstrated: _____ (coverage)

for _____ (amount).

Coverage for Non-Sudden Accidental Occurrence

1. Specify total sales or revenues for the fiscal year preceding July 15, 1982.

   Owner _____

   Operator unknown

2. Date by which coverage must be demonstrated (check one).

   1983 ____
   Jan. 16, 1984 ____
   1985 ____

3. Letter to Executive Director has been sent (unless demonstrated earlier) stating the date he plans to have coverage. Yes ___ No ✓

INDUSTRIAL SOLID WASTE

Compliance Monitoring Inspection Report
Surface Impoundments Checklist (TAC 335.281-.288)

Class of Waste (H

***

1. Are surface impoundments presently used to treat or store waste? Yes ✓ No ___

   a. If yes, inspect the impoundments.

**2. Does the impoundment appear to maintain at least 2 feet (60 cm) of freeboard? Yes ___ No ✓

**3. Check for evidence of overtopping of the dike. Is the facility compliant? Yes ✓ No ___

**4. Check for evidence of seepage. Is the facility compliant? Yes ✓ No ___

5. Containment system for dyked or dammed impoundments (335.283)

   **a. Does the earthen dike have a protective cover (e.g. grass, shale, rock) to minimize wind and water erosion? Yes ___ No ___

6. What wastes are treated or stored in the impoundment? heavy metals bearing sludge is settled in the impoundments.

7. Are waste analyses and trial tests conducted on these wastes (chemical processing of a different hazardous waste or method only)? N/A ✓ Yes ___ No ___

   a. If not, does the owner/operator have written documented information on similar treatment of similar wastes? Yes ___ No ___

8. Is this information retained in the operating record? N/A ✓ Yes ___ No ___

9. Is the impoundment inspected daily to check freeboard level? Yes ✓ No ___

10. Is the impoundment, dikes and vegetation surrounding the dike inspected weekly to detect leaks, deterioration or failures? Yes ✓ No ___

*(Changed 9/10/82, response format realigned, other minor changes)
**See Note on Page 1
***This response column indicates noncompliance.

***

11. Does the impoundment have a liner? Yes___ No✓

a. If Yes, what type? _____

_____

b. If Yes, does it have a leachate collection and removal system? Yes___ No___

**12. Is there evidence of ignitable or reactive wastes placed in the impoundment? Yes___ No✓

a. If Yes, explain in comments sheet [review 335.118(a)];
or
b. If Yes, is the impoundment used solely for emergencies? Yes___ No___

**13. Is there evidence of incompatible wastes placed in the impoundment [if yes, review 335.118(b)]? Yes___ No✓

14. Are monitor wells required for this site? (Refer to Rule 335.191-.195 - Ground Water Monitoring) Yes✓ No___

a. Has owner/operator installed, operated and maintained a ground water monitoring system (unless waived) prior to 11/19/81? Yes___ No✓

NOTE 1: Attach Ground Water Monitoring Report if answer to question 14 is yes.

15. Describe impoundment(s) site and indicate plat map, location(s) and designation(s). Also describe each impoundment's dimensions and capacity (acre-feet): see attached diagram for location in the facility.

_____

NOTE 2: If the answer is No for Nos. 5a, 7a, 8, 9, 10 and No. 14 after 11/19/81, explain in comments sheet.

*(Changed 9/10/82, response formal realigned)
**See Note on Page 1
***See Note Page 3

INDUSTRIAL SOLID WASTE

Compliance Monitoring Inspection Report
Tanks Checklist (Rule 335.261-.267)

Section A - General ***

1. Are tanks presently used to treat or store waste? Yes ✓ No ___

   a. If no, do not complete rest of form.

   b. If yes, check tanks. (Describe type of tank and indicate underground, above ground, or on-ground in comments sheet). Subsurface

   c. Is there evidence that incompatible wastes have been placed in the tank? Yes ___ No ✓

      (1) If yes, refer to 335.118(b) and explain in comments sheet.

   d. Check tank(s) for evidence of any ruptures, leaks or corrosion. Is facility compliant [335.264(a)(4)]? Yes ___ No ✓

2. Are there any uncovered tanks? Yes ✓ No ___

   a. If no, do not complete b. - e.

   b. If yes, do they have 2 feet (60 cm) freeboard? or N/A ___ Yes ✓ No[1] ___

   c. A containment structure? (e.g. dike or trench equal to volume of 2 feet of tank) or N/A ___ Yes ___ No[1] ✓

   d. A drainage control system? N/A ___ Yes ___ No[1] ✓

   e. A diversion structure? (e.g. standby tank) N/A ___ Yes ___ No[1] ✓

   NOTE 1: The structure in c, d or e must have a capacity that equals or exceeds the volume of the top 2 feet (60 cm) of the tank; any one yes answer for 2b, c, d or e indicates compliance.

3. Are any of the tanks continuous feed? Yes ✓ No ___

   a. If yes, is it equipped with a means to stop inflow (e.g. waste feed cutoff or bypass to a stand-by tank)? Yes ✓ No ___

Section B - Waste Analysis

1. Is the tank used to store one waste exclusively? Yes ✓ No ___

   a. If no, what are the different wastes stored in the tank?

   _____

   _____

   _____

   _____

*(Changed 9/10/82, added *** note and reworded some questions)
**Note checklist questions to be noted or completed during on-site inspection
***No checked in this column indicates noncompliance.

b. Are waste analyses and trial treatment or storage tests done on these different wastes? N/A ✓ Yes ___ No ___ ***
NOTE 1: Not applicable for less than 90 day storage [335.69(a)(2)].

(1) If no, does he have written, documented information on similar storage or treatment of similar wastes? N/A ✓ Yes ___ No ___

c. Are there records available of these wastes analyses in the operating record? N/A ✓ Yes ___ No ___

Section C - Inspections (Where Present) 335.264

1. Do the records indicate the owner/operator inspects, where present, the following at least daily:

a. Discharge control equipment (e.g. waste feed cut-off, bypass and/or drainage system)? Yes ✓ No ___

b. Monitoring equipment (e.g. pressure and temperature gages)? Yes ___ No ___ N/A

c. Level of waste in each uncovered tank? Yes ✓ No ___

2. Do the records indicate the owner/operator inspects the following at least weekly:

a. Construction materials of tanks for corrosion or leaks? Yes ___ No ✓

b. Construction materials of and area surrounding discharge confinement structures for erosion or signs of leakage? Yes ___ No ___ N/A

3. Is there a written inspection schedule (Rule 335.116)? Yes ✓ No ___

a. If yes, is the schedule kept at the site? Yes ✓ No ___

b. If no for 3 or 3a, explain in the comments sheet.

4. Is there evidence of ignitable wastes placed in tanks? Yes ___ No ✓

a. If yes, do records indicate that they are treated, rendered, or mixed before or immediately after placement in the tank so it no longer meets the definition of ignitable? or Yes ___ No[2] ___

** b. Is the waste protected from sources of ignition? Yes ___ No[2] ___

(1) If yes, use comments sheet to describe separation and confinement procedures.

(2) If no, use comments sheet to describe sources of ignition. or

*(Changed 9/10/82, added *** note and 2 notes added)
**See Note on Page 9
***See Note on Page 9

***

c. Is the tank used solely for emergencies? Yes___ No[2]___
NOTE 2: Only one of the three questions 4a, b, c answered yes indicates compliance.

5. Is there evidence of reactive wastes placed in tanks? Yes___ No ✓

a. If yes, do records indicate that they are treated rendered, or mixed before or immediately after placement in the tank so it no longer meets the definition of reactive? or Yes___ No[1]___

**b. Is the waste protected from sources of reaction? Yes___ No[1]___

(1) If yes, use comments sheet to describe separation and confinement procedures.

(2) If no, use comments sheet to describe sources of reaction. or

c. Is the tank used solely for emergencies? Yes___ No[1]___
NOTE 1: Only one of the three questions 5a, b, c answered yes indicates compliance.

6. Do the records indicate that incompatible wastes are placed in the same tank? Yes___ No ✓

a. If yes, review 335.118(b) and explain in the comments sheet.

7. If a waste is to be placed in a tank that previously held an incompatible waste do operating records indicate that the tank was washed? Yes___ No___

a. [illegible] 335.118(b) and describe washing procedures. ________________

b. [illegible] is possible for incompatible waste to be placed in the same tank [illegible]

NOTE: [illegible] 6(1) and 1c, and [illegible] in comments sheet.

8. Describe [illegible] and designation(s). Also [illegible] *treatment tanks*

[illegible]

INDUSTRIAL SOLID WASTE

*Closure and Post-Closure Compliance Review Checklist
(TAC Section 335.211-.220

**

Note: List each type of hazardous waste T, S, D facility, number and volume in the comments sheet.

I. CLOSURE PLAN; Is there a written plan? Yes___ No✓ see attached memo no written plan onsite

1. Does the plan identify the *MAXIMUM EXTENT OF OPERATION which will be unclosed during the life of the facility? Yes___ No___

*Note: The rules [335.213(a)(1)] require that the closure plans identify the maximum extent of the operation which will be unclosed during the life of the facility. If the plan is based on the expected extent of operations to be closed just prior to closure, it is important to consider whether that represents the "maximum" in this question.

2. Does the plan identify the steps for PARTIAL and/or COMPLETE CLOSURE [335.213(a)], at any time during the intended operating life, of

a. surface impoundments? N/A___ Yes___ No___

b. landfills? N/A___ Yes___ No___

c. tanks? N/A___ Yes___ No___

d. other (specify: _____) Yes___ No___

3. Is there an estimate of the MAXIMUM INVENTORY of wastes in storage or treatment at any time during the life of the facility? N/A___ Yes___ No___

4. Does the plan clearly identify the STEPS TO CLOSE [335.213(a)]?

a. at any point during the intended operating life? Yes___ No___

b. at the end of the intended operating life? Yes___ No___

*(Changed 10/13/83, added question to 1 above; this checklist is for use with "Part A" permit applicants that have not submitted "Part B" application)
**This response column indicates noncompliance.

**

5. Are the following STEPS TO CLOSE included in the plan:

   a. removal of wastes [335.214(a)]? N/A___ Yes___ No___

   b. treatment of wastes [335.214(a)]? N/A___ Yes___ No___

   c. waste disposal [335.214(a)]? N/A___ Yes___ No___

   d. cover [335.344(a)]? N/A___ Yes___ No___

   e. decontamination of equipment and structures [335.213(a)(3)]? N/A___ Yes___ No___

   f. closure certification [335.216]? N/A___ Yes___ No___

6. Does the plan describe the DECONTAMINATION [335.213(a)(3)] of facility equipment and structures? N/A___ Yes___ No___

7. With respect to CERTIFICATION of closure (335.216), does the closure plan describe scheduled or estimated number of inspections? Yes___ No___

8. Does the plan identify the YEAR when closure is expected to occur [335.213(a)(4)]? Year _____ Yes___ No___

9. Is there a SCHEDULE for final closure activities [335.213(a)(4)]? Yes___ No___

10. Closure plan evaluated 2/29/84 (date): Adequate Yes___ No ✓

COMMENTS

no written plan onsite

*(Changed 10/13/83, added checklist question No. 10)
**This response column indicates noncompliance.

**

II. POST-CLOSURE PLAN CHECKLIST; Is there a written plan? *N/A___ Yes___ No ✓

no written plan on site

*Note: If no post-closure required, proceed to Cost Estimate Checklist.

1. Does the post-closure plan provide for 30 years of post-closure care? N/A___ Yes___ No___

   - How many years of post-closure care? _____

2. Does the plan clearly identify the ACTIVITIES required in the post-closure care? Yes___ No___

3. Do the MAINTENANCE PLANS for waste containment structures [335.218(a)(2)] include:

   a. maintaining final cover (erosion damage repair) frequencies [335.344(d)(1)]? Yes___ No___

   b. vegetation and fertilizing frequencies [335.218(a)(2)(A)]? Yes___ No___

   c. collecting, removing, and treating leachate activities [335.344(d)(2)]? N/A___ Yes___ No___

   d. collecting, removing, and treating leachate frequencies [335.344(d)(2)]? N/A___ Yes___ No___

   e. gas collection activities [335.344(d)(3)]? N/A___ Yes___ No___

   f. gas collection frequencies [335.344(d)(3)]? N/A___ Yes___ No___

4. Do MONITORING EQUIPMENT MAINTENANCE plans [335.218(a)(2)(B)] include:

   a. activities? Yes___ No___

   b. frequencies? Yes___ No___

5. Does the plan identify the name, address and phone number of the POST-CLOSURE PERIOD CONTACT [335.218(a)(3)]? Yes___ No___

*(Changed 10/13/82; added checklist for use with "Part A" permit applicants that have not submitted "Part B" application)
**This response column indicates noncompliance.

				**
6.	For landfills, does the post-closure plan address the following objectives and indicate how they will be achieved [335.344(b)]?			
	a. Control of pollution migration via ground water, surface water, and air.	N/A___	Yes___	No___
	b. Control of surface water infiltration, including prevention of pooling.	N/A___	Yes___	No___
	c. Prevention of erosion.	N/A___	Yes___	No___
7.	For land treatment operations, does the post-closure plan address the following objectives and indicate how they will be achieved [335.327(a)]?			
	a. Control of migration of hazardous wastes and constituents into the ground water.	N/A___	Yes___	No___
	b. Control of the release of contaminated runoff into surface water.	N/A___	Yes___	No___
	c. Control of the release of airborne particulate contaminants caused by wind erosion.	N/A___	Yes___	No___
	d. Protection of food chain crops.	N/A___	Yes___	No___
8.	For landfills and land treatment operations, does the post-closure plan include at least a narrative statement indicating that the following factors were considered in addressing the closure objectives [335.327(b), 335.344(b)]?			
	a. Type and amount of waste.	N/A___	Yes___	No___
	b. Mobility and rate of migration.	N/A___	Yes___	No___
	c. Site location, topography, and surrounding land use.	N/A___	Yes___	No___
	d. Climate, including precipitation.	N/A___	Yes___	No___
	e. Characteristics of the cover, including material, final surface contour, thickness, porosity, permeability, slope, vegetation.	N/A___	Yes___	No___

*(Changed 9/30/82, added checklist for use with "Part A" permit applicants that have not submitted "Part B" application)
**This response column indicates noncompliance.

**

f. Geological and soil profiles and surface and subsurface hydrology. N/A___ Yes___ No___

g. Unsaturated zone monitoring. N/A___ Yes___ No___

h. Type, concentration, and depth of hazardous constituent migration as compared to background concentrations. N/A___ Yes___ No___

9. Does the plan address the requirement for notice to the local land authority (335.219)? Yes___ No___

10. Does the plan address the requirement for notice in the deed (335.220)? Yes___ No___

11. Post closure plan evaluated 2/29/84 Adequate Yes___ No ✓
Date

COMMENTS

no written plan onsite

*(Changed 10/13/83; added checklist for use with "Part A" permit applicants that have not submitted "Part B" application)
**This response column indicates noncompliance.

**

III. COST ESTIMATE; Evaluated: 2/29/84 (date) N/A___ Yes___ No ✓

no cost estimate

1. Is there a written closure cost estimate [335.232(a)] (Supp. 14 of Group I for estimated cost? Yes___ No ✓

2. Is the closure cost estimate adequate to cover all required closure activities [335.232(a)]? NA Yes___ No___

   If "No", specify in comments.

3. Is there a written post-closure cost estimate [335.233(a)]? N/A___ Yes___ No ✓

4. Is the annual estimate multiplied by 30 to cover the entire post-closure care period [335.233(b)]? Yes___ No___

   or number of years ____

5. Is the cost estimate adequate to cover all the activities in the post-closure plan [335.218(a)]? Yes___ No___

   Including labor costs? Yes___ No___

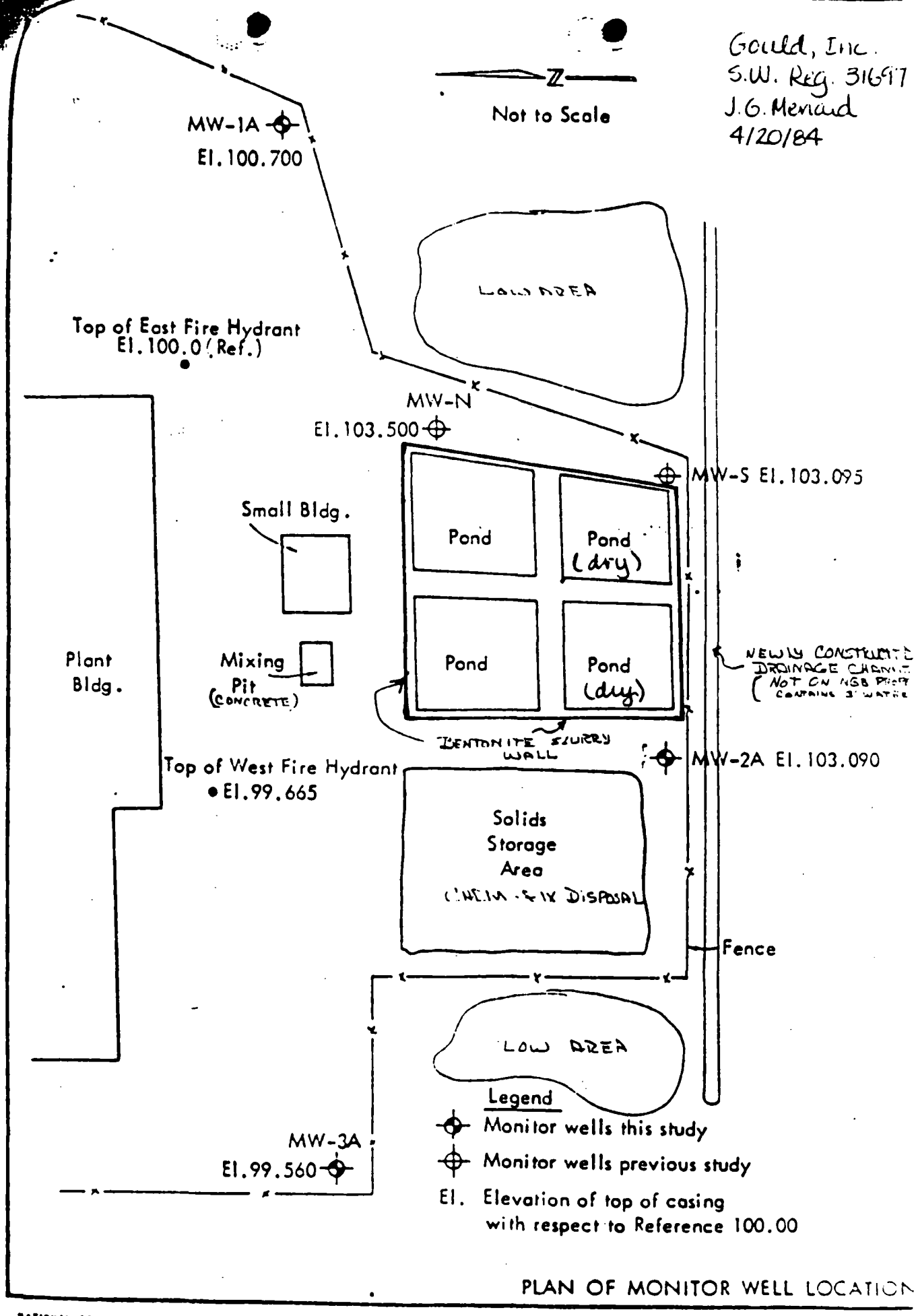
   As well as the requirements of notice to local land authorities and in deeds (335.219 and .220)? Yes___ No___

COMMENTS

no cost estimates or closure/post-closure plans available at the time of the inspection

*(Changed 10/13/83, added checklist for use with "Part A" permit applicants that have not submitted "Part B" application)
**This response column indicates noncompliance.

Gould, Inc.
S.W. Reg. 31697
J.G. Menard
4/20/84



PLAN OF MONITOR WELL LOCATION

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS

PLATE

cc to M. Dick 4/26/84

RECEIVED

APR 25 84

Texas Department of Water Resources

INTEROFFICE MEMORANDUM

TO : Bryan Dixon, Acting Section Chief,
Solid Waste and Spill Response Section

DATE: April 20, 1984

THRU :

FROM : Jenny Gredell Menard, Environmental Quality Specialist, District 4

SUBJECT: Gould, Inc. - Farmers Branch, Texas
Registration No. 31697

ATTENTION: Mike Dick

On February 29, 1984 and April 11, 1984, the writer contacted Mr. William Backus and Mr. E. C. Milton and conducted an annual solid waste inspection at the above-referenced site.

The facility manufactures batteries. All drainage from the interior of the plant flows to a treatment system consisting of two neutralization tanks. The slurry resulting from neutralization is pumped to one of two currently active unlined surface impoundments and the sludge is allowed to settle. The liquid in the impoundments is discharged to the sanitary sewerage system. The sludge is considered hazardous at this point due to leachable lead concentrations. The sludge has, in the past, been chem-fixed and disposed of on-site.

The impoundments are surrounded by a bentonite slurry wall from approximately one foot below the surface on down to shale, approximately 20 feet below the surface, according to Mr. Milton. Outside of this area, five groundwater monitoring wells are located. This office sampled these wells April 11, 1984.

At the time of inspection in February, the company had just completed removal of 200 eighteen-yard truckloads of the sludge that had been fixed with flue dust from the south surface impoundment. The material was shipped to Rollins as hazardous waste.

An unlined pit approximately 100 feet by 25 feet by 15 feet was located west of the surface impoundments outside of the bentonite slurry wall. This area had been used to store chem-fixed sludge from the surface impoundments. Mr. Milton and Mr. Backus stated that approximately 600 truckloads of chem-fixed wastes had been removed from the area and shipped to Louisiana as hazardous waste. Removal of the chem-fixed material created the pit below the groundwater level. At the time of inspection, the company was pumping the groundwater collected in the pit into their surface impoundment for discharge to the sanitary sewerage system. Mr. Milton stated that the company planned to take soil borings in this area to check for lead contamination at a later date. This office was never notified of the closure of this storage area as required by TAC 335.6(f).

The two concrete subsurface neutralization tanks in the treatment system can not be emptied to inspect for leaks or ruptures, so the company has installed a plastic liner in the tanks with no space between the concrete and liner. The liner also encloses a PVC pipe near the center of the tank that is to be pumped weekly to detect any leakage of the liner. This lining of the tank has not been approved by Austin, as requested in the compliance agreement.

Mr. Milton stated during the inspection that the company has been submitting the completed white copy of the shipping ticket to Allen Messenger in the Austin office. The company has not filed the required monthly reports. They have been informed of what reports need to be filed by Nancy Villegas in Austin and stated that the reports would be filed.

The company did not have a waste analysis plan, operating record, or closure plan on-site at the time of inspection. They have not submitted the company's annual report to complete the financial test for closure assurance and have submitted no information concerning sudden or non-sudden liability coverage.

All of the above items are being addressed by a compliance agreement with an effective date of March 15, 1984. The adequacy of the company's groundwater monitoring plan is also being addressed by central office.

The company discovered an open subsurface pipe in the battery acid drain system that leaked acid to the ground when the system backed up. The leak was discovered January 28, 1984 and reported January 30, 1984 to Don Eubank of District 4. This is in violation of the maximum 24-hour time allowance to report an accidental discharge, required by the Water Code, Section 26.042. It was requested at that time that the company test the soil for lead contamination and remove any contaminated soil. The spill site was inspected on February 7, 1984 by the writer and Chris Swan of this office. Mr. Bill Backus of the company stated that they had dug 10-11 feet deep in the area surrounding the spill and removed 3-4 yd^3 of soil. This soil was dumped in the waste surface impoundments. Mr. Backus said that rather than test the soil at the time, the company backfilled the excavation with clean soil. They plan to drill soil borings in the future to check for contamination. Mr. Backus stated that the company would submit a written sampling plan within a week of the spill report specifying when and where sampling would occur. This office never received that plan. During the February 29, 1984 inspection, Mr. Backus and Mr. Milton stated that the soil borings would be done in approximately one month. They stated that they would report the results of the borings to this agency.

Quarterly sampling of the groundwater wells was done on April 11, 1984 by Tom Hauessler of Professional Service Industries. Samples were also collected at that time by the writer.

It was noted during the sampling that the west surface impoundment had only nine inches of freeboard on its west side. Water was not being pumped from the former chem-fix pit into the surface impoundment, but the pump and hose were still in place.

During the day on April 11, a street sweeper continually swept the paved back parking lot. The sweeper occasionally drove onto the west side of the dike surrounding the surface impoundments and dumped the sweepings, either into the west surface impoundment, or onto the dike.

It was often difficult to obtain access to the groundwater monitoring wells for sampling on April 11, 1984. Discarded conveyors from the manufacturing plant had to be moved to allow sampling of Well 3A. A backhoe blocked the road to Well 2A. Concrete rubble made it difficult to drive to and sample minor well south. Old plant machinery and rubble blocked the path to Well 1A.

North monitoring well was, in the past, hit and damaged. Sampling of this well was difficult because the well casing apparently is not straight. The integrity of this well should be investigated.

This is submitted for your information.

JGM:jc

APPROVED Don Eckfrank SIGNED Jerry Medill Maynard

Compl[illegible]e Monitoring Inspection Repor[illegible]
Financial Assurance, Closure and Post Closure Worksheet

To be completed if the facility treats, stores or disposes of hazardous waste such that a permit is required or if the facility has submitted a Part A Application.

EPA No. TXD 007331879
Facility: Gould, Inc. (GNB Batteries, Inc.) Permit/Reg. No. 31697
Address: 1800 Valley View Lane, Farmers Branch Inspection Date 2/29/84
Facility Owner/Operator Fiscal Year End: Month December Day 31

1. Preinspection call to ~~Bob Brydson (2041)~~ Russ Kimble. confirms the facility has submitted current financial assurance documents. Yes ✓ No ___ N/A ___
   If yes, check the documents submitted:

   - ☐ Sudden liability amount $_____ per occurrence, _____ annual
   - ☐ Non-Sudden liability amount $_____ per occurrence, $_____ annual
   - ☑ Closure assurance amount $ 1 million
   - ☐ Post Closure assurance amount $_____

2. Brydson reports documents adequate Yes ___ No ✓ N/A ___
   If no, list problems deficient in auditor's and annual report required for financial test for closure - FY82.

For the following questions, review appropriate inspection checklist answers (Group I-Major pages 8-10, Non-major-page 3, and Group II-pages 21-27)

3. Closure Plan is adequate Yes ___ No ✓ N/A ___

4. Closure Cost Estimate, amount $ 1 million is adequate Yes ___ No ___ N/A ___
   If no, list proper amount $_____

5. Post Closure Plan is adequate Yes ___ No ___ N/A ✓

6. Post Closure Cost Estimate, amount $_____, is adequate Yes ___ No ___ N/A ✓
   If no, list proper amount $_____

7. Facility has provided financial assurances for closure Yes ___ No ✓ N/A ___
   If yes, date effective _____ Date expires _____
   Instrument _____

8. Facility has provided financial assurances for post closure Yes ___ No ___ N/A ✓
   If yes, date effective _____ Date expires _____
   Instrument _____

9. Facility has provided appropriate sudden liability coverage Yes ___ No ✓ N/A ___
   If yes, date effective _____ Date expires _____
   Instrument _____

10. Facility has provided appropriate non-sudden liability coverage Yes ___ No ✓ N/A ___
    If yes, date effective _____ Date expires _____
    Instrument _____

04-84

FORM SUBMITTED

By: J. Gredell Menard

Date: 4/6/84

MAJOR FACILITIES STATUS SHEET
Initial ✓ Update ____

ID No.: TXD007331879 Registration/Permit No.: 31697

Facility Name: Gould Inc. (GNB Batteries) District No.: 4

1. Ground Water Monitoring Status

Detection		Waiver	
Assessment	✓	NA	

2. Ground Water Monitoring Well System

a. Evaluated?	NA		NE	✓	DATE EVAL'D
b. Adequate?	YES		NO		

→ to be evaluated by Karen Macko of central office due to previous referral to Austin office

3. Ground Water Sampling, Analysis and Evaluation Program

a. Evaluated?	NA		NE	✓	DATE EVAL'D
b. Adequate?	YES		NO		

4. Notice of Significant Increase in Parameter Concentrations

Submitted?	NA		NO	DATE SUB'D

5. Ground Water Quality Assessment Report

a. Submitted?	NA		NO	DATE SUB'D
b. Evaluated?	NE		DATE EVAL'D	
c. Adequate?	YES		NO	
d. Showed hazardous waste constituents in ground water?	YES		NO	

6. Waiver Demonstration

a. Evaluated?	NA		NE	DATE EVAL'D
b. Adequate?	YES		NO	

7. Ground Water Monitoring Records

a. Evaluated?	NA		NE	DATE EVAL'D
b. Adequate?	YES		NP	

ID # TXD007331879

8. Activities Subject to Closure/Post-Closure

Landfill ___
Surface Impoundment ✓
Land Treatment/Application ___
Incinerator ___
Waste Pile ___
Other (Specify) ✓
Treatment tanks

9. Closure Plan

a. Evaluated? NE ___ DATE EVAL'D 2/29/84
b. Adequate? YES ___ NO ✓ no closure plan

10. Closure Cost Estimate

a. Evaluated? NA ___ NE ___ DATE EVAL'D 2/29/84
b. Adequate? YES ___ NO ✓
c. Amount: $ 0 UNKNOWN ___

11. Closure Assurance Instrument(s)

a. Evaluated? NA ___ NE ___ DATE EVAL'D 2/29/84
b. Adequate? YES ___ NO ✓ NO INSTRUMENT ___
c. Type(s):

TRUST FUND ___
FINANCIAL BOND ___
PERFORMANCE BOND ___
LETTER OF CREDIT ___
INSURANCE ___
FINANCIAL TEST ✓
CORPORATE GUARANTEE ___
STATE GUARANTEE ___
OTHER STATE MECHANISM ___

12. Post-Closure Plan

a. Evaluated? NA ✓ NE ___ DATE EVAL'D ___
b. Adequate? YES ___ NO ___

13. Post-Closure Cost Estimate

a. Evaluated? NA ✓ NE ___ DATE EVAL'D ___
b. Adequate? YES ___ NO ___
c. Amount: $ ___ UNKNOWN ___

14. Post-Closure Assurance Instrument(s)

a. Evaluated? NA ✓ NE ___ DATE EVAL'D ___
b. Adequate? YES ___ NO ___ NO INSTRUMENT ___
c. Type(s):

TRUST FUND ___
FINANCIAL BOND ___
PERFORMANCE BOND ___
LETTER OF CREDIT ___
INSURANCE ___
FINANCIAL TEST ___
CORPORATE GUARANTEE ___
STATE GUARANTEE ___
OTHER STATE MECHANISM ___

PA-SCORE

REFERENCE 5

SUBSURFACE INVESTIGATION
UNDERGROUND EFFLUENT PIPELINE
FARMERS BRANCH, TEXAS

Report to

GNB BATTERY, INC.
Mendota Heights, Minnesota

By

PROFESSIONAL SERVICE INDUSTRIES, INC.
NATIONAL SOIL SERVICES DIVISION
Dallas, Texas

March, 1984

Professional Service Industries, Inc.
National Soil Services Division

March 29, 1984
PSI Project 45031

GNB Battery, Inc.
1110 Highway 110
Mendota Heights, Minnesota 55165

Attention: Mr. Everett Milton
Supervisor Facilities Planning

SUBSURFACE INVESTIGATION
UNDERGROUND EFFLUENT PIPELINE
FARMERS BRANCH, TEXAS

Gentlemen:

Presented here is the report of our investigation of soil sufate and pH levels in two boring locations near the recently constructed valve box for the above-referenced project. This study was conducted in general accordance with the verbal request and authorization of Mr. Everett Milton on March 9, 1984.

Two sample borings were advanced to the depth of the underlying shale aquiclude at the approximate locations shown on the Plan of Borings, Plate 1. Descriptions of the soil and rock formations encountered are presented on the logs of boring, Plates 2 and 3. Keys to descriptive terms and symbols used on the logs are presented on Plates 4 and 5.

Soil samples were obtained at the surface and approximately every five feet thereafter to boring termination depths. Samples were submitted to Spectrum Laboratories for analyses of pH levels and total sulfate concentrations. Results are presented on Plate 6. In general, these soils do not appear to have any contamination as a result of effluent leakage from the buried pipeline. In accordance with our interpretation of the local groundwater gradients, the sampled locations should be very nearly in line

with the projected path of groundwater which moves through the location of the observed pipeline leak.

Based on the findings of this investigation, contaminants which may have entered the groundwater environment through the observed pipeline leak do not appear to have migrated any appreciable distance from the point of escape. Although this investigation is of a limited scope and cannot be considered conclusive, it appears that the soil formations adjacent to the leak are low permeability clays which are capable of effectively containing any effluent which may have leaked from the underground pipeline.

We appreciate the opportunity to be of service. Should you have any questions or require additional assistance, please call.

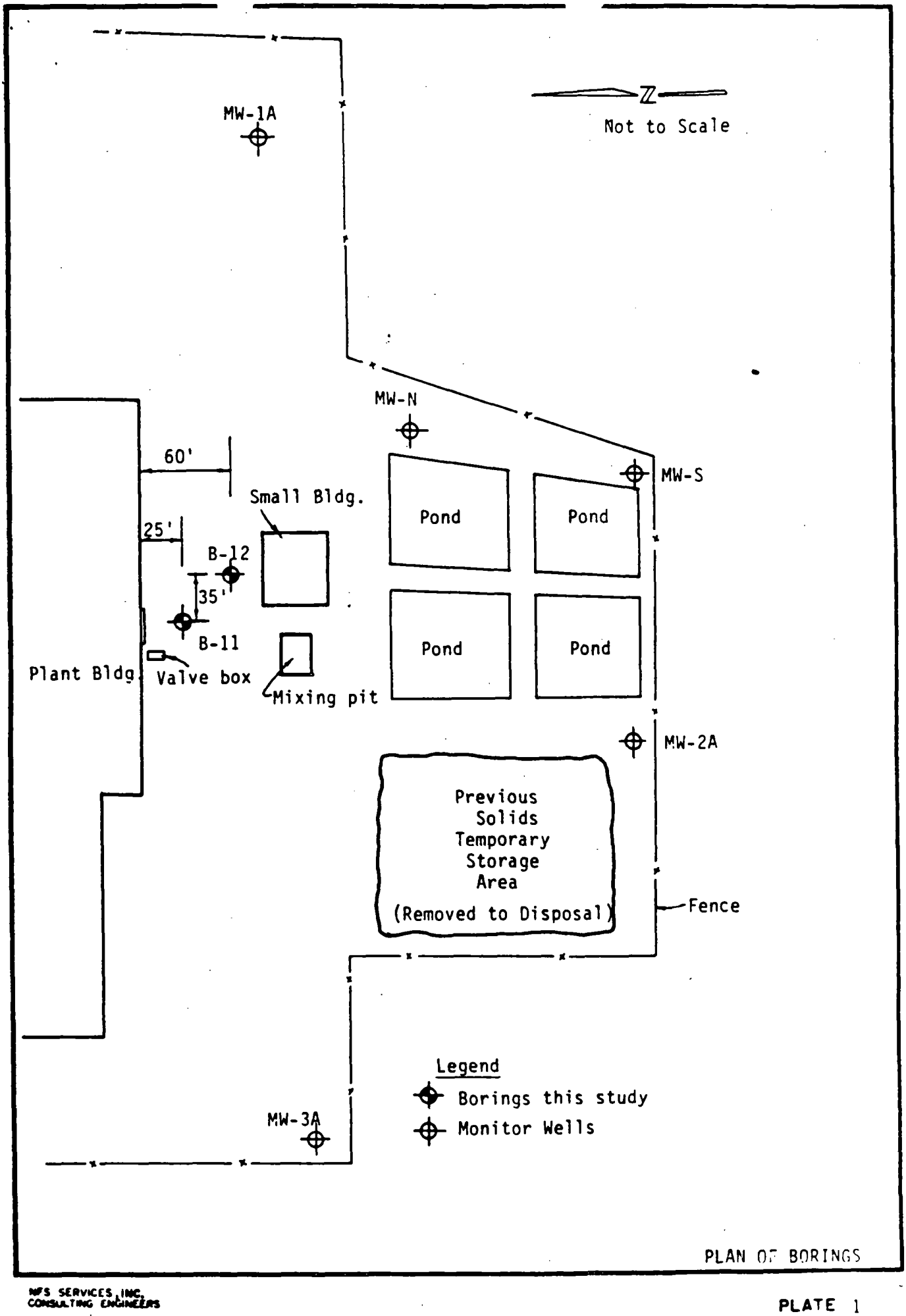
Very truly yours,

NATIONAL SOIL SERVICES DIVISION

William Prikryl, P. E.
Project Engineer

WP/gt

Copies submitted: 3



PLAN OF BORINGS

NFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 1

LOG OF BORING NO. B-11

BURIED EFFLUENT PIPELINE
GNB BATTERIES, INC. PLANT
FARMERS BRANCH, TEXAS

TYPE BORING: Undisturbed Sample **LOCATION:** See Plan of Borings, Plate 1

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. (0.5, 1.0, 1.5)	UNIT DRY WT. LBS./CU. FT
			Hard light gray gravelly sand (Fill)						
			6" Asphalt 0.6-1.0'						
			Very stiff brown sandy clay, w/small gravel						
5			-w/increasing sand						
10			-loose dark brown						
			-w/iron stains (CL)						
15			Soft tan to gray shale, weathered (Eagle Ford shale)						
20									
25									
30									
35									

COMPLETION DEPTH: 15.0' **DEPTH TO WATER:** 7.0 - Caved at 12.0'
DATE: 3/12/84 **DATE:** 3/12/84

NFS/NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

PLATE 2

LOG OF BORING NO. B-12

BURIED EFFLUENT PIPELINE
GNB BATTERIES, INC. PLANT
FARMERS BRANCH, TEXAS

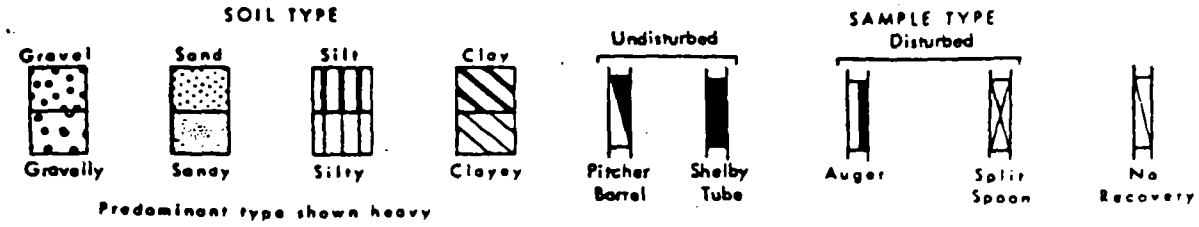
TYPE BORING: Undisturbed Sample **LOCATION:** See Plan of Borings, Plate 1

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. (0.5, 1.0, 1.5)	UNIT DRY WT LBS./CU FT.
0			4" Asphalt						
			Very stiff tan and gray sandy clay, w/mottled red iron stains						
5			-w/increasing sand						
			-dark brown						
10			(CL)						
			Medium dense gray sand						
15			Soft gray shale (Eagle Ford shale)						
20									
25									
30									
35									

COMPLETION DEPTH: 15.0' **DEPTH TO WATER:** 7.0' - Caved at 12.5'
DATE: 3/12/84 **DATE:** 3/12/84

NFS/NATIONAL SOIL SERVICES
CONSULTING ENGINEERS

KEY TO SOIL CLASSIFICATIONS AND SYMBOLS



TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE GRAINED SOILS
(Major portion retained on No. 200 sieve)

Includes (1) clean gravels and sands described as fine, medium or coarse, depending on distribution of grain sizes and (2) silty or clayey gravels and sands. Condition is rated according to relative density, as determined by laboratory tests or estimated from resistance to sampler penetration.

Penetration Resistance Blows/Foot**	Descriptive Term	Relative Density *
0 - 10	Loose	0 to 40%
10 - 30	Medium dense	40 to 70%
30 - 50	Dense	70 to 90%
Over 50	Very dense	90 to 100%

* From tests on undisturbed sand sample
** 140# hammer, 30-inch drop

Relative density is also used to describe condition of low plasticity (P I ≤ 10) fine grained soils such as sandy silts.

FINE GRAINED SOILS
(Major portion passing No. 200 sieve)

Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings or by unconfined compression tests for soils with plasticity indices ≥ 10.

Descriptive Term	Compressive Strength Tons/Sq. Ft.
Very soft	less than 0.25
Soft	0.25 to 0.50
Firm	0.50 to 1.00
Stiff	1.00 to 2.00
Very stiff	2.00 to 4.00
Hard	4.00 and higher

Note: Slickensided and fissured clays may have lower unconfined compressive strengths than shown above, because of planes and weakness or shrinkage cracks in the soil. The consistency ratings of such soils are based on penetrometer readings.

TERMS CHARACTERIZING SOIL STRUCTURE

Fissured - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical

Sensitive - pertaining to cohesive soils that are subject to appreciable loss of strength when remolded

Laminated - composed of thin layers of varying color and texture

Interbedded - composed of alternate layers of different soil types

Calcareous - containing appreciable quantities of calcium carbonate

Well graded - having wide range in grain sizes and substantial amounts of all intermediate particle sizes

Poorly graded - predominately of one grain size, or having a range of sizes with some intermediate size missing

Slickensided - having inclined planes of weakness that are slick and glossy in appearance.

Degree of slickenside development:

Slightly slickensided - slickensides are present at intervals of 1-2 feet and soil does not easily break along these planes

Moderately slickensided - slickensides are spaced at intervals of 1-2 feet and soil breaks easily along these planes.

Extremely slickensided - slickensides are spaced at intervals 4-12 inches, are continuous and interconnected. Soil breaks easily along the slickensides. Resulting size of broken pieces three to six inches.

Intensely slickensided - slickensides are spaced at intervals of less than four inches and are continuous in all directions. Soil breaks down along planes into nodules 0.25 - 2 inch in size.

KEY TO ROCK CLASSIFICATIONS AND SYMBOLS

ROCK TYPE


Claystone


Limestone


Dolomite


Chalk


Marl


Shale


Siltstone


Sandstone


Conglomerate


Granite


Quartz


Anhydrite

SAMPLE TYPE

Undisturbed


Pitcher Barrel


Shelby Tube


Rock Core


Split Spoon


No Recovery

TERMS CHARACTERIZING PHYSICAL PROPERTIES OF ROCK

Bedding Characteristics:

Massive - occurring in thick beds, free from minor joints and laminations, more than 100 mm. in thickness

Thin to med. - occurring in relatively thin layers or laminae, 2 mm. to 100 mm. bedding planes

Fissile - bedding which consists of laminae less than 2 mm. in thickness, splits easily along closely spaced parallel planes

Cross-bedded - arrangement of laminations of strata transverse or oblique to the main planes of stratification of the strata concerned

Foliated - the laminated structure resulting from segregation of granular and fine minerals into layers parallel to the schistosity (result of the parallel arrangement of platy and ellipsoidal mineral grains)

Platy - parallel arrangement of broad or flat minerals (giving a foliation) by slablike inclusions, by schlieren, or by bands of different mineralogy or texture

Fragmental - consisting of broken material, particularly that which has been moved from its place of origin

Lithologic Characteristics:

Clayey, Shaly, Calcareous (limy) Siliceous Sandy, Silty, Plastic Seams Carbonaceous - The lithology is used describing the parent rock such as a shaly limestone or carbonaceous shale

Hardness and Degree of Cementation:

Very soft or plastic - can be remolded in hand, corresponds in consistency up to very stiff in soils

Soft - can be scratched with fingernail

Moderately hard - can be scratched easily with knife; cannot be scratched with fingernail

Hard - difficult to scratch with knife

Very hard - cannot be scratched with knife

Poorly cemented or friable - easily crumbled

Cemented - bound together by chemically precipitated material occurring in the interstices between allogenic particles of rock - quartz, calcite, dolomite, siderite and iron oxide are common cementing materials

Swelling Properties:

Swelling and Non-Swelling

Slaking Properties:

Non-Slaking

Slakes slowly on exposure

Slakes readily on exposure

Texture:

Dense - fine-grained cohesive rocks in which the grain size generally averages less than 0.05 to 0.1 mm.

Fine - more than 50% by weight smaller than 0.074 mm. in diameter (seen only with a strong hand lens or a microscope)

Medium - majority of grain sizes between 0.074 mm. and 0.5 mm.

Coarse - grain sizes range from 0.5 mm. to 1.0 mm. (crystals are visible to the unaided eye)

Structure:

Bedding - Flat (0° to 15°); Gently dipping (15° to 30°) Steeply dipping (30° to vertical)

Fractures, scattered or open - broken surface of minerals or rock which does not exhibit cleavage or bedding planes

Fractures, closely spaced - shows signs of broken minerals but now is cemented

Brecciated (sheared & fragmented) - rock made up of highly angular coarse fragments - may be sedimentary or formed by crushing or grinding along faults

Joints - fractures in rock, generally more or less vertical or transverse to bedding, along which no appreciable movement has occurred.

Faulted - fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture - the displacement may be a few inches or many miles

Slickensides - polished and striated (scratched) surface that results from friction along a fault plane

Degree of Weathering:

Unweathered - rock in its natural state before being exposed to atmospheric agents

Slightly weathered - noted predominantly by color change with no disintegrated zones

Weathered - complete color change with zones of slightly decomposed rock

Extremely weathered - complete color change with consistency, texture, and general appearance approaching soil

Solution and Void Conditions:

Solid - contains no voids

Vuggy (pitted) - cavities in rock

Vesicular - containing many small cavities

Porous - containing voids, pores, interstices, or other openings which may or may not interconnect

Cavities - solutional concavity in limestone caves, the outline of which is determined by a joint or joints - also applied to small hollows in cavernous lava

Cavernous - containing cavities or caverns, sometimes quite large - most frequent in limestones and dolomites

SPECTRUM LABORATORIES

Chemical ▲ Metallurgical ▲ Electron Microscopy

REPORT OF: Soil March 22, 1984

REPORT TO: NFS Services, inc. Attn: William Prikryl
P.O. Box 24596
Dallas, TX 75224

DATE RECEIVED: March 13, 1984

IDENTIFICATION: As Shown

Sample ID	pH	Sulfate, ppm
B-11 J-2	6.0	4
J-4	7.3	6
J-6	7.3	12
J-8	7.8	14
B-12 J-2	7.4	8
J 3	7.6	9
J-5	7.3	14
J-7	8.2	22

DISTRIBUTION OF REPORTS:
2 - NFS Services, Inc.
Attn: William Prikryl

RESPECTFULLY SUBMITTED,

Spectrum Laboratories
Gary E. Cude
Director-Analytical Services

ss 11258
Lab Numbers

OPERATING RECORD
(Texas Hazardous Waste Management Plan)
(Volume II, Section II, Subsection 8)
(Appendix C, Exhibit 1)

Appendix N

Closure Costs

The authority for this cost is the Closure And Post Closure Plan. Consult that document for the costs.

For reference, the January, 1984 cost is $1,500,000.

OPERATING RECORD
(Texas Hazardous Waste Management Plan)
(Volume II, Section II, Subsection 8)
(Appendix C, Exhibit 1)

Appendix M

Inspection Logs

Maintenance and Inspection logs are maintained in a separate manual.

See Site Inspection Manual and Site Inspection Logs.

PA-SCORE

REFERENCE 6

GNB Batteries Inc. Automotive Battery Division

P.O. Box 43140
St. Paul, MN 55164 U.S.A.
Telephone: (612) 681-5000

October 28, 1983

Mr. Mike Dick
Texas Department of Water Resources
Hazardous Waste Division
Stephen F. Austin Building
1700 North Congress
Austin, Texas

Dear Mr. Dick:

Confirming our phone conversation of today, I would also like to have some further discussion on Item #5 of our October 25 agenda when we meet again on November 7, 1983. I am still having difficulty understanding how that section can apply to anyone who is not disposing. References called from that section are specifically directed toward facilities operating disposal sites.

My specific problem is with the reporting requirements, and the resultant "tracking" of the waste.

Thank you for your assistance.

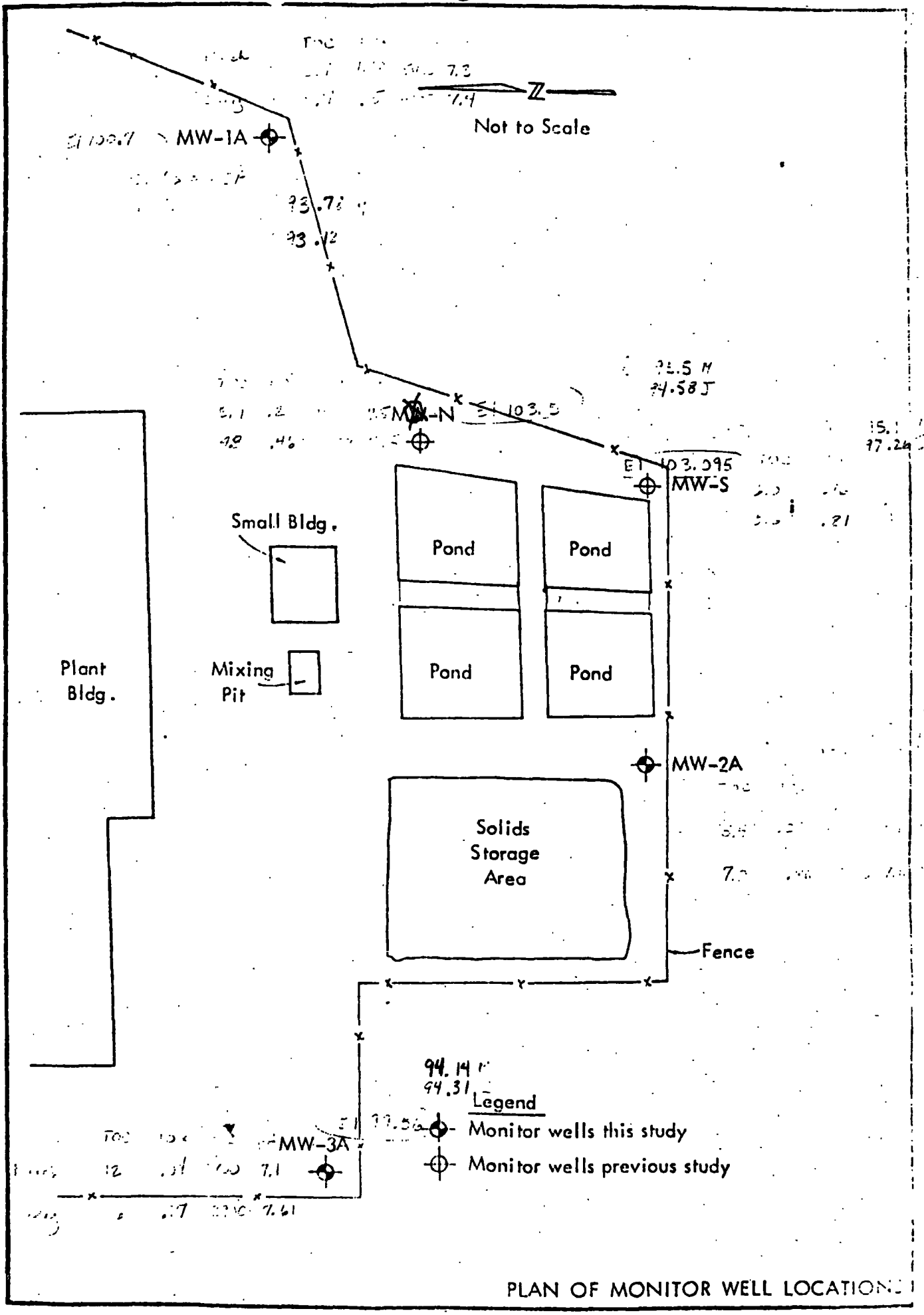
Yours truly,

GNB BATTERIES INC.

E. C. Milton
Manager, Facilities Engineering

cc: T. Hatterschide
B. Backus
M. Roberts
D. Eubanks - TDWR, Duncanville

/ch



PLAN OF MONITOR WELL LOCATIONS

LOG OF BORING NO. MW-1A

MONITOR WELL INSTALLATION
GNB BATTERY PLANT
FARMER'S BRANCH, TEXAS

TYPE BORING: Undist./Split Spoon LOCATION: See Plan of Borings, Plate 1

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. (0.5 / 1.0 / 1.5)	UNIT DRY WT LBS/CU FT
0			Stiff tan sandy clay, w/3" sand and roots at surface (CL)							
5			Loose tan and brown clayey fine sand, w/occasional gravel (SC)	4						
10			Medium dense tan fine to coarse-sand, w/gravel (SF)	23						
15			Medium dense gravel, w/sand (GP)							
			Soft gray shale, slightly iron stained	37						
20										
25										
30										
35										

COMPLETION DEPTH: 16.0'
DATE: 2/23/83

LOG OF BORING NO. MW-2A

MONITOR WELL INSTALLATION
GNB BATTERY PLANT
FARMER'S BRANCH, TEXAS

TYPE BORING: Undist./Split Spoon Sample LOCATION: See Plan of Borings, Plate 1

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT LBS/CU. FT.
5			Brown clayey fine sand, w/1.0' of chemically fixed solids -w/occasional gravel, clay pockets, iron stains (SC)							
10			Very dense brown sandy gravel	54						
15			-dense (GP)	31						
			Soft gray shale	58						
20										
25										
30										
35										

COMPLETION DEPTH: 16.5'
DATE: 3/2/83

LOG OF BORING NO. MW-3A

MONITOR WELL INSTALLATION
GNB BATTERY PLANT
FARMER'S BRANCH, TEXAS

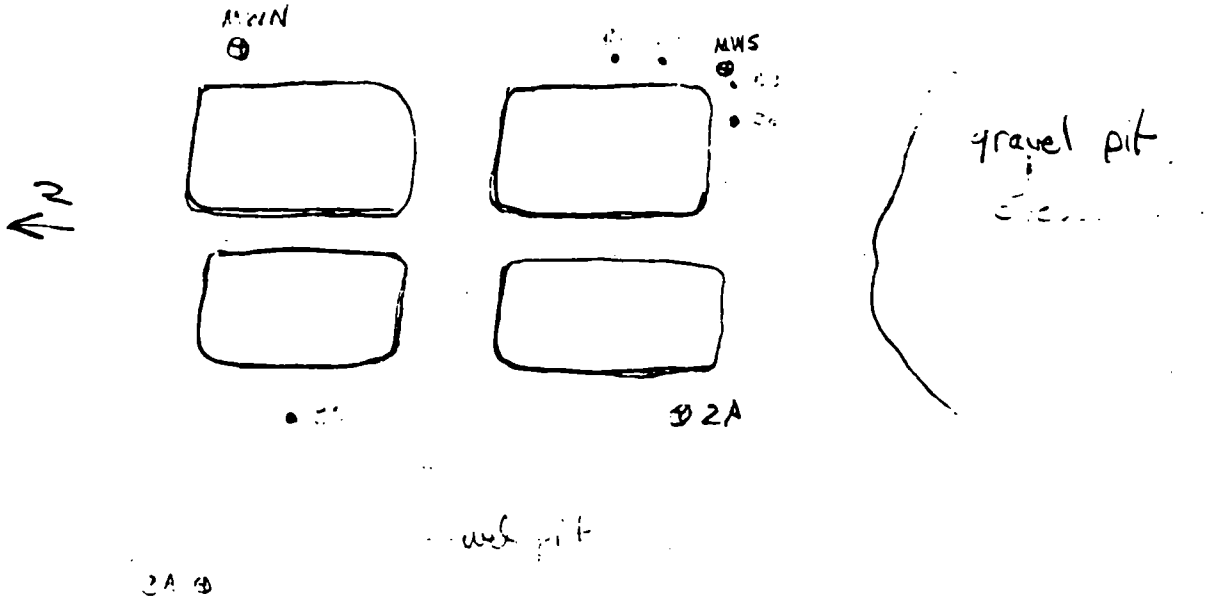
TYPE BORING: Undist. Split Spoon Sample LOCATION: See Plan of Borings, Plate 1

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	% PASSING NO. 200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ FT. 0.5 1.0 1.5	UNIT DRY WT. LBS./CU. FT.
5			Brown clayey fine sand, w/gravel, occasional clay pockets, cinders							
			(Fill) (SC)							
10			Grayish-brown gravelly clay							
			-w/numerous gravel (CL)							
15			Soft gray shale	37						
20										
25										
30										
35										

COMPLETION DEPTH: 15.0'
DATE: 2/28/83

	South well		North well	
	pH	SO4	pH	SO4
[illegible]/17/76	6.7	[illegible]	6.7	1072
10/12/76	6.8	[illegible]	6.7	327
[illegible]/77	6.8	[illegible]	6.6	333
[illegible]/[illegible]/80	[illegible]	1154	6.9	103
5/28/82	7.4	780	7.5	640
7/7/82	7.7	806	7.7	689

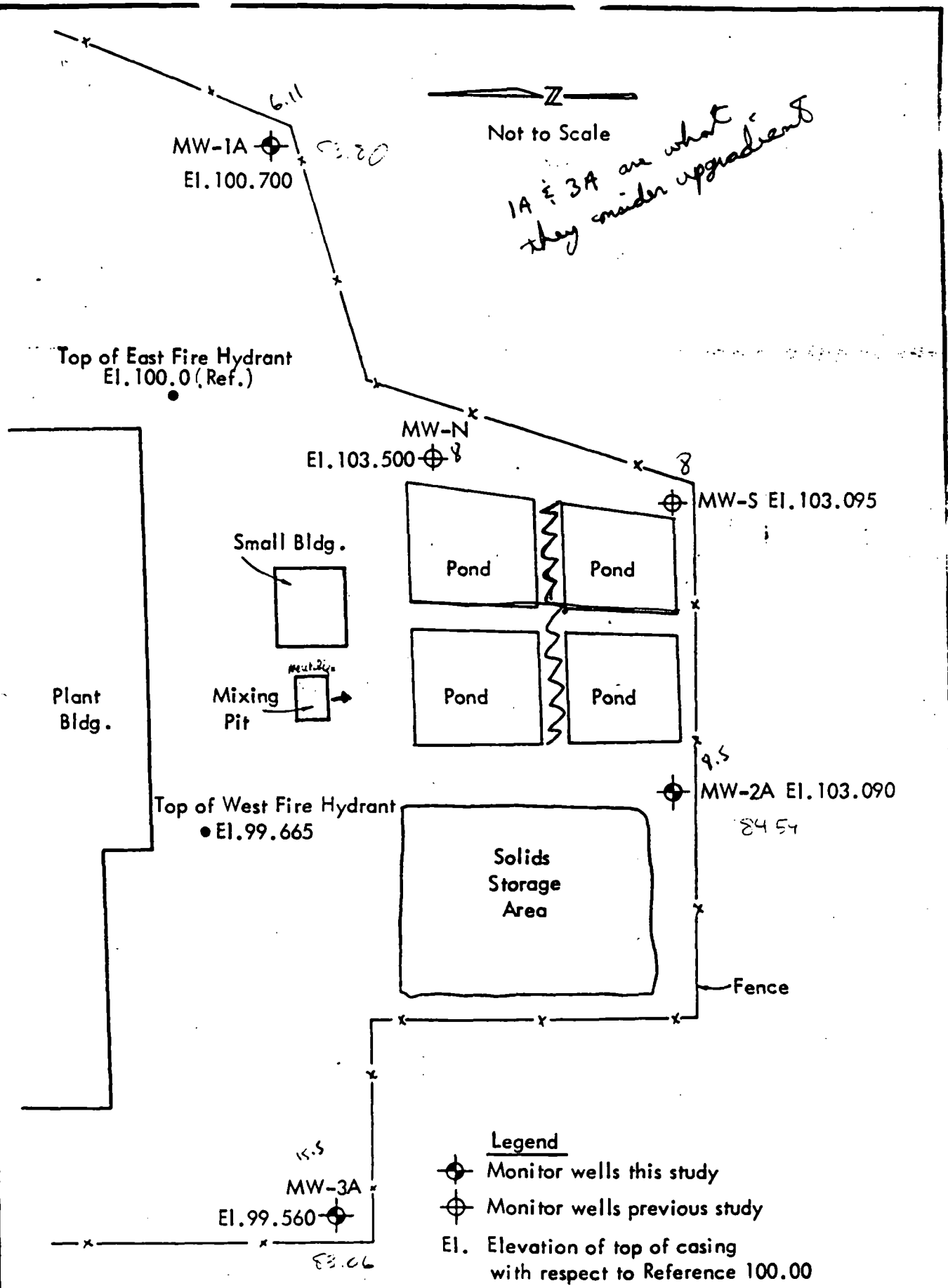
1A	2A	3A
385	670	720
1110	974	437



Average - SO4 reported in mg/l

C-1 - 1675 - 115 (15')
C2 - 810 - 107 (15')
C3 - 260 - 80 (16')
C4 - 1675 - 327 (16')
C5 - 170 - [illegible] (16')

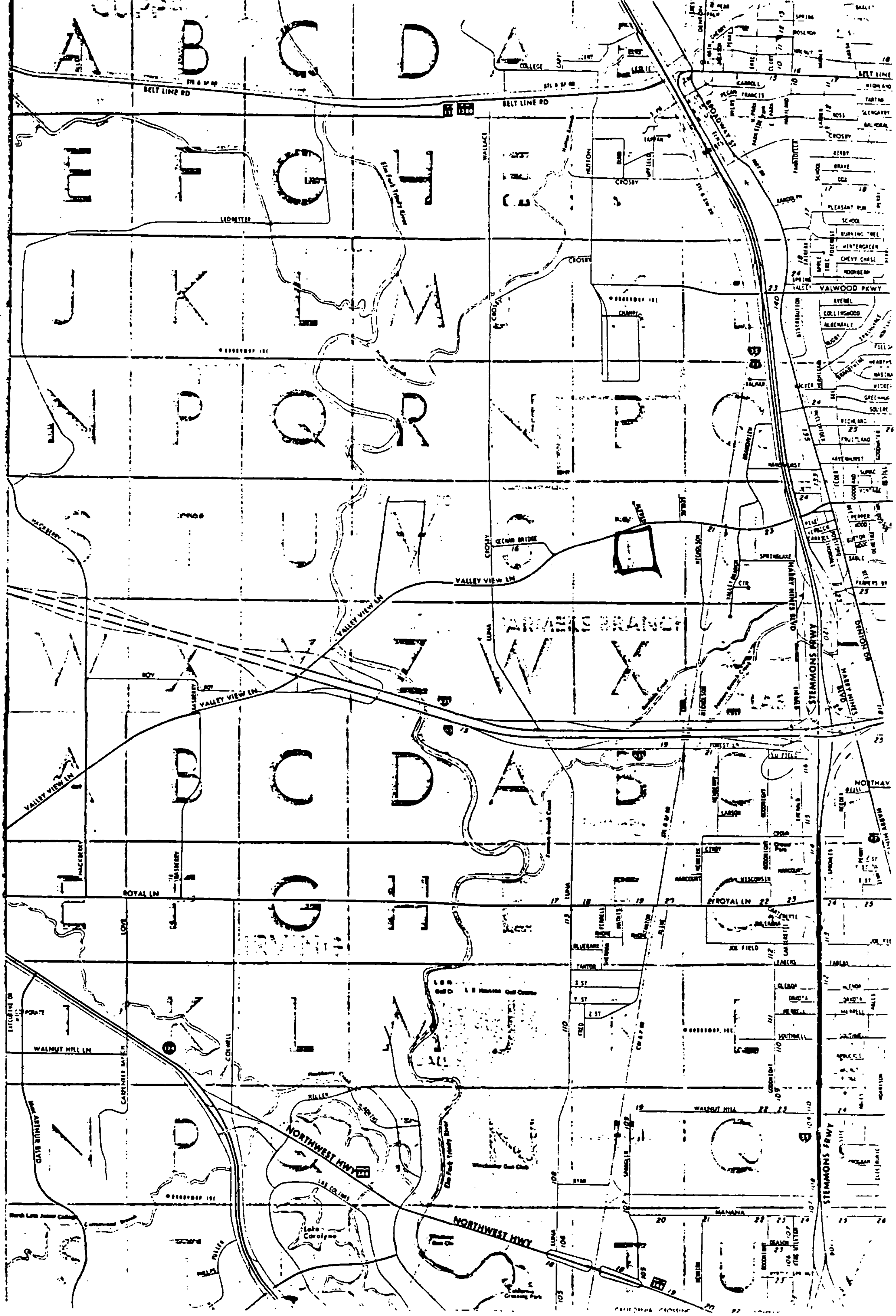
	SO4	SC	pH
North Lagoon	1720	3400	[illegible]
South Lagoon	1720	2500	[illegible]
West Gravel Pit	2970	5620	24



PLAN OF MONITOR WELL LOCATIONS

NATIONAL SOIL SERVICES, INC.
CONSULTING ENGINEERS.

PLATE 4


BELT LINE RD
COLLEGE
CARROLL
BROADWAY ST
CROSBY
LEDBETTER
VALWOOD PKWY
VALLEY VIEW LN
FARMERS BRANCH
STEMMONS FRWY
HARRY HINES BLVD
DENTON DR
FOREST LN
ROYAL LN
LUNA
WALNUT HILL LN
WALNUT HILL
NORTHWEST HWY
L B Houston Golf Course
Winchester Gun Club
Lake Carolyne
MANANA
JOE FIELD
NORTHAV
SPRINGLAKE
HAVENHURST
COLLINGWOOD
PLEASANT RUN
SCHOOL

TEXAS DEPARTMENT OF WATER RESOURCES

C O N F E R E N C E R E C O R D

Project: Gould, Inc. (Solid Waste Registration No. 31697)

Conference date: October 25, 1983 Place: SFA Building, Rm. 1028

Type of conference: Informal

(telephone, staff, formal or informal hearing, other)

Attendance:

Name	Agency
See Attached List	

Summary:

The meeting was held to request corrective measures necessary for Gould's compliance with the Industrial Solid Waste Rules. Additionally, information was obtained in order for the Department to make a determination on the Company utilization of a recycler to dispose of off-spec materials, and other waste. The company agreed to the following corrective actions:

1. Comply with TAC 335.220 by November 30, 1983;
2. Comply with TAC 335.114 by November 30, 1983;
3. The company is now in compliance with TAC 335.116;
4. Comply with TAC 335.173 by November 30, 1983;
5. Comply with TAC 335.221-.220 by December 30, 1983;
6. The company is no longer utilizing the Class II site/(on-site);
7. The company will comply with the freeboard requirement by December 30, 1983;
8. The company will comply with 40 CFR, 265.147(a), .147(d) by November 30, 1983;
9. The company will immediately comply with TAC 335.264(a)(5); and
10. The company will comply with TAC 335.262(d) by December 30, 1983.

Additionally, a meeting was set up for November 2, 1983 with Department geologist and consultants to discuss the ground water problems.

MGD:py

Prepared by: Michael Dale

TDWR-0103

TEXAS DEPARTMENT OF WATER RESOURCES

C O N F E R E N C E   A T T E N D A N C E

Project: Group (GNB) - SWC # 31697

Conference: 1028 Conf. Room   Place: SFA

Name	Representing	Title Function, or Position	Phone No.
Michael Dick	TDWC	Staff	512/475-5511
Don C. Eubank	TDWR	Dist 4	(214)298-617
[illegible]	TDWR	General Counsel Office	(512) 475-7545
William A. [illegible]	GNB	Groundwater Superintendent	214/243-101
E C Milton	GNB	Manager, Facility [illegible]	
Robert Brydson	TDWR	Permits	475-2041

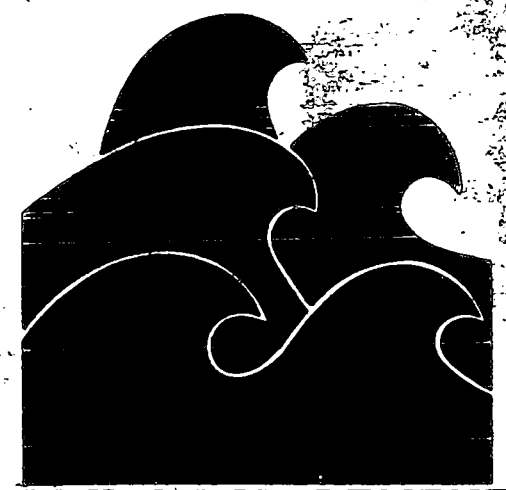
PA-SCORE

REFERENCE 7

Report 269

OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

Volume 1



TEXAS DEPARTMENT OF WATER RESOURCES

April 1982

TEXAS DEPARTMENT OF WATER RESOURCES

REPORT 269

OCCURRENCE, AVAILABILITY, AND CHEMICAL QUALITY OF GROUND WATER IN THE CRETACEOUS AQUIFERS OF NORTH-CENTRAL TEXAS

VOLUME 1

By

Phillip L. Nordstrom, Geologist

April 1982

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water-bearing formations in north-central Texas are of Cretaceous age.

The Cretaceous System is composed of two series, Gulf and Comanche, and each is divided into groups. The Gulf Series is divided into the following five groups: Navarro, Taylor, Austin, Eagle Ford, and Woodbine. The Comanche Series is divided into the following three groups: Washita, Fredericksburg, and Trinity.

The Taylor and Eagle Ford Groups consist predominantly of shale, limestone, clay, and marl and yield only small amounts of water in localized areas. The Navarro and Austin Groups consist of chalk, limestone, marl, clay, and sand and, except for the Nacatoch and Blossom Sands, yield only small amounts of water locally. The Nacatoch Sand of the Navarro Group and the Blossom Sand of the Austin Group yield small to moderate supplies of water to limited areas. The Woodbine Group is the only important aquifer of the Gulf Series in the area covered by this report. It consists of sand, sandstone, and clay and is capable of yielding small to large amounts of water. The Woodbine Group is discussed in detail in the sections covering the stratigraphy of the water-bearing formations and the occurrence and the availability of ground water.

Both the Washita and Fredericksburg Groups of the Comanche Series consist predominantly of limestone, shale, clay, and marl and yield only small amounts of water to localized areas. The Trinity Group is the principal water-bearing group of rocks in the region and is divided into the Paluxy, Glen Rose, Twin Mountains, and Antlers Formations. The Paluxy consists of sand and shale and is capable of yielding small to moderate amounts of water. The Glen Rose is predominantly a limestone and yields small quantities of water only to localized areas. The Twin Mountains is composed of conglomerate, sand, and shale. It is the principal water-bearing formation of Cretaceous age in the region and yields moderate to large amounts of water. The name Antlers Formation is applied north of the Glen Rose pinch-out, where the Paluxy and Twin Mountains coalesce to form one unit. Water-bearing members of the Trinity Group are discussed in detail in the sections covering stratigraphy of the water-bearing formations and occurrence and availability of ground water.

The relationship, approximate maximum thickness, brief description of lithology, and summary of water-bearing properties of the stratigraphic units are shown in Table 1. Outcrop areas of the various formations are illustrated on the geologic outcrop map (Figure 16). The altitude of the top of the formations and their net sand thicknesses are shown on Figures 18 through 22, 27, and 29.

Geologic cross-sections are profiles portraying an interpretation of a vertical section of the earth. Five geologic cross-sections were constructed; two are strike sections and three are dip sections. Dip sections are constructed approximately perpendicular to the strike of the beds and parallel to the dip of the beds, while strike sections are constructed parallel to the strike of the beds. These five geologic sections, illustrated on Figures 35 through 39, show the structure and stratigraphic relationships of the geologic units.

Structure

Pennsylvanian and Permian rocks in the outcrop along the west edge of the study area dip westward and northwestward at about 40 feet per mile (7.6 m/km). Permian beds probably extend not much farther eastward than Montague County. The Pennsylvanian sediments, which underlie the Cretaceous rocks in most of the remaining area, thicken from the outcrop eastward into the Fort Worth basin. The axis of this basin and many of the other major structural features in or near the report area are shown on Figure 4.

The Cretaceous System forms a southeastward-thickening wedge extending across the area into a structural feature known as the East Texas basin. Thickness of these rocks ranges from zero in the west to nearly 7,500 feet (2,286 m) in the southeast. Regional dip is east and southeast at rates of about 15 to 40 feet per mile (2.8 to 7.6 m/km). The dip rate increases to as much as 300 feet per mile (57 m/km) on the southeastward-plunging ridge called the Preston anticline. This anticline and an associated trough to the south (Sherman syncline) have caused a change in the regional outcrop pattern as shown on the geologic map (Figure 16).

Tertiary System beds dip regionally southeastward from the Mexia-Talco fault system, which extends in a northerly direction along the eastern margin of the report area, at a rate of about 100 feet per mile (19 m/km). Deviations from this dip rate occur locally due to the faulting. These beds attain a thickness of approximately 250 feet (76 m) within the area of study. However, just outside the area of investigation in southern Navarro County they reach a maximum thickness in excess of 1,000 feet (305 m).

Quarternary deposits occur along the floodplains of the Brazos, Red, Sulphur, and Trinity Rivers and

Table 1.—Stratigraphic Units and Their Water-bearing Properties

Yield, in gallons per minute (gal/min): small, less than 100 gal/min; moderate, 100–1,000 gal/min; large, more than 1,000 gal/min.

Era	System	Series	Group	Stratigraphic units	Approximate maximum thickness (feet)	Character of rocks	Water-bearing characteristics
Cenozoic	Quaternary	Recent		Alluvium	75	Sand, silt, clay and gravel.	Yields small to large amounts of water to wells along the Red River
		Pleistocene		Fluviatile terrace deposits			
	Tertiary	Eocene	Wilcox		100	Fine to medium sand with silt and clay	Yields small quantities of water to wells in the eastern part of the area.
		Paleocene	Midway		150	Gray, calcareous clay, in part silty to sandy	Do.
Mesozoic	Cretaceous	Gulf	Navarro	Kemp Clay Corsicana Marl	300	Fossiliferous clay and hard limy marl	Not known to yield water to wells in the area.
				Nacatoch Sand	500	Fine sand and marl, fossiliferous	Yields small to moderate quantities of water near the outcrop.
			Taylor	Marlbrook Marl Pecan Gap Chalk Wolfe City · Ozan Formations	1,500	Clay, marl, mudstone, and chalk	Yields small quantities of water to shallow wells.
			Austin	Gober Chalk Brownstown Marl Blossom Sand Bonham Formation	700	Chalk, limestone, and marl; fine to medium sand, fossiliferous	Yields small to moderate quantities of water to wells in the northeastern part of the area; very limited as an aquifer.
			Eagle Ford		650	Shale with thin beds of sandstone and limestone	Yields small quantities of water to shallow wells.
			Woodbine		700	Medium to coarse iron sand, sandstone, clay and some lignite	Yields moderate to large quantities of water to municipal, industrial and irrigation wells.
		Comanche	Washita	Grayson Marl · Mainstreet Limestone Pawpaw Formation · Weno Limestone · Denton Clay Fort Worth · Duck Creek Kiamichi Formation	1,000	Fossiliferous limestone, marl, and clay; some sand near top	Yields small quantities of water to shallow wells.
			Fredericksburg	Edwards Limestone Comanche Peak Formation — Goodland Limestone	250	Limestone, clay, marl, shale, and shell agglomerates	Do.
				Walnut Formation			
			Trinity	Antlers Formation: Paluxy Formation	400	Fine sand, sandy shale, and shale	Yields small to moderate quantities of water to wells.
				Antlers Formation: Glen Rose Formation	900 – 1,500	Limestone, marl, shale, and anhydrite	Yields small quantities of water in localized areas.
				Antlers Formation: Twin Mountains Formation	1,000	Fine to coarse sand, shale, clay, and basal gravel and conglomerate	Yields moderate to large quantities of water to wells.
Paleozoic				Paleozoic rocks undifferentiated		Sandstone, limestone, shale and conglomerate	Yields small quantities of water in the western part of the area.

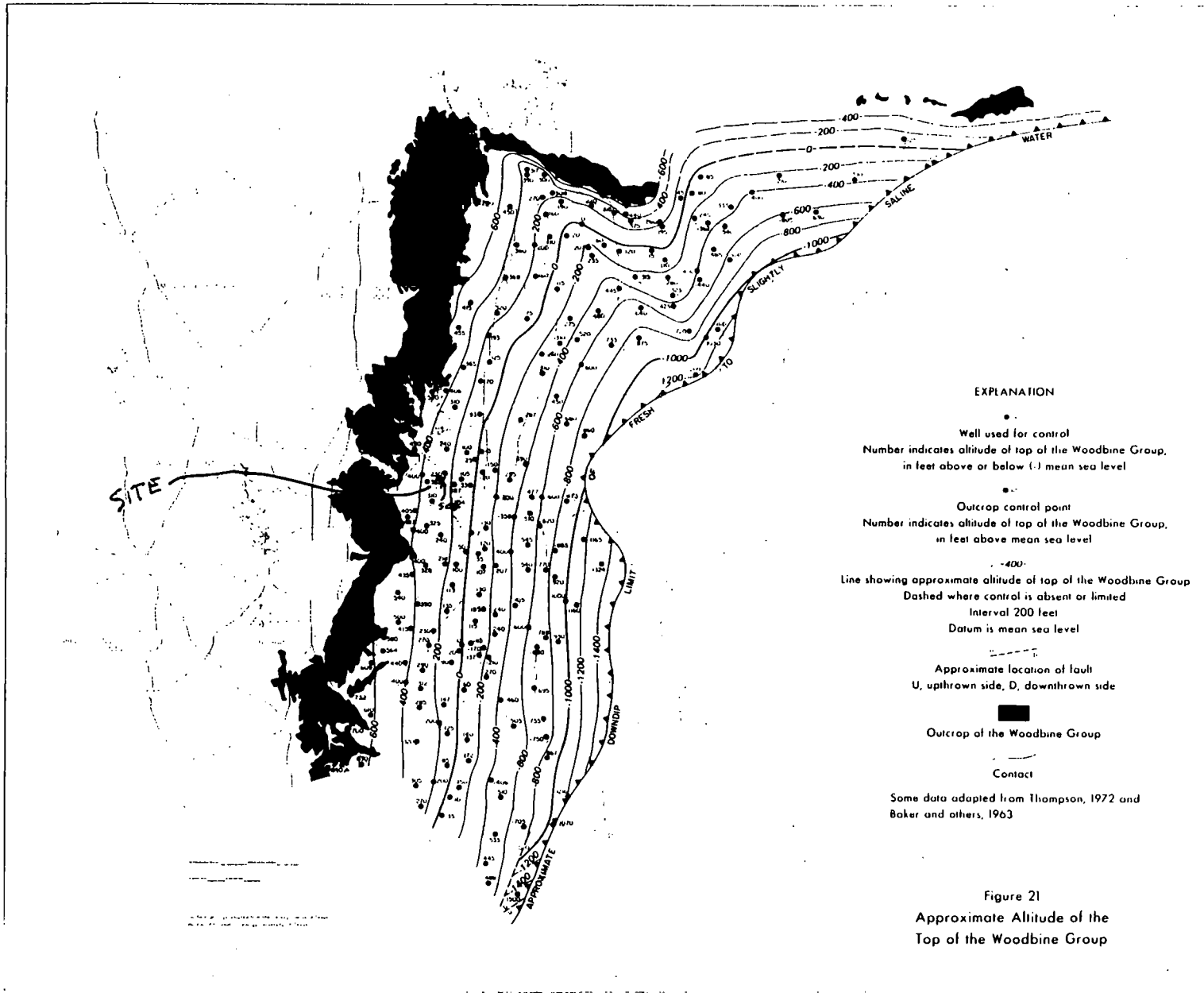


Figure 21
Approximate Altitude of the
Top of the Woodbine Group

PA-SCORE

REFERENCE 8

MITRE

26 May 1988
W52-219

Ms. Lucy Sibold
U.S. Environmental Protection Agency
401 M Street, S.W.
Room 2636, Mail Code WH-548A
Washington, D.C. 20460

Dear Ms. Sibold:

Enclosed is a copy of the draft revised HRS net precipitation values for 3,345 weather stations where data were available. The data are presented by state code, station name, latitude longitude, and net precipitation in inches. A list of state codes is also enclosed.

The net precipitation values are provided to assist the Phase II - Field Testing efforts. It is suggested that the value from the nearest weather station in a similar geographic setting be used as the net precipitation value for a site.

If there are any questions regarding this material, please contact Dave Egan at (703) 883-7866.

Sincerely,

Andrew M. Platt
Group Leader
Hazardous Waste Systems

AMP:DEE/hme

Enclosures

cc: Scott Parrish

The MITRE Corporation
Civil Systems Division
7525 Colshire Drive, McLean, Virginia 22102-3481
Telephone (703) 883-6000 Tele-

FIELD NAME	FIELD DEFINITION
STATE-NUMBER	Characters 1-2 Cooperative State Code for each State. STATE CODE LISTING 01 Alabama — 28 New Jersey 02 Arizona — 29 New Mexico 03 Arkansas — 30 New York 04 California — 31 North Carolina 05 Colorado — 32 North Dakota 06 Connecticut — 33 Ohio 07 Delaware — 34 Oklahoma 08 Florida — 35 Oregon 09 Georgia — 36 Pennsylvania 10 Idaho — 37 Rhode Island 11 Illinois — 38 South Carolina 12 Indiana — 39 South Dakota 13 Iowa — 40 Tennessee 14 Kansas — 41 Texas 15 Kentucky — 42 Utah 16 Louisiana — 43 Vermont 17 Maine — 44 Virginia 18 Maryland — 45 Washington 19 Massachusetts — 46 West Virginia 20 Michigan — 47 Wisconsin 21 Minnesota — 48 Wyoming 22 Mississippi — 49 Not Used 23 Missouri — 50 Alaska 24 Montana — 51 Hawaii 25 Nebraska — 66 Puerto Rico 26 Nevada — 67 Virgin Islands 27 New Hampshire — 91 Pacific Islands
STATION-NUMBER	Characters 3-6 Cooperative Station Number Range = 0001-9999.
DATA-CODE	Character 7 Data Indicator Code 1 = Maximum Mean Temperature 2 = Minimum Mean Temperature 3 = Average (Mean) Temperature 4 = Heating Degree Days 5 = Cooling Degree Days 6 = Precipitation (1951-80 Normals only)

OBS	STATE	NAME		LATNUM	LONNUM	NETPREC
2696	41	LIVINGSTON 2 NNE		30.44	94.56	17.4546
2697	41	LLANO		30.45	98.41	3.2401
2698	41	CAMERON		30.51	96.59	8.7802
2699	41	FT STOCKTON KFST RADIO		30.52	102.54	0.0006
2700	41	MADISONVILLE		30.57	95.55	12.8990
2701	41	LAMPASAS		31.03	98.11	5.9964
2702	41	TEMPLE		31.06	97.21	8.2839
2703	41	MC CAMEY		31.08	102.12	0.0235
2704	41	BRADY 2 NNW		31.09	99.21	2.3916
2705	41	EDEN 1		31.13	99.51	1.6053
2706	41	LUFKIN FAA AP		31.14	94.45	14.1089
2707	41	CENTERVILLE		31.16	95.59	13.4505
2708	41	CROCKETT		31.18	95.27	14.7831
2709	41	MARLIN 3 NE		31.20	96.51	10.5747
2710	41	SAN ANGELO WSO	R	31.22	100.30	0.6783
2711	41	PECOS		31.25	103.30	0.0278
2712	41	GATESVILLE		31.26	97.46	6.9334
2713	41	WACO WSO	R	31.37	97.13	6.7548
2714	41	HEXIA		31.41	96.29	12.6400
2715	41	YSLETA		31.42	106.19	0.0144
2716	41	BROWNWOOD		31.43	98.59	3.6480
2717	41	BALLINGER 1 SW		31.44	99.58	1.8361
2718	41	PALESTINE		31.47	95.39	14.9654
2719	41	WINK FAA AIRPORT		31.47	103.12	0.0679
2720	41	CENTER		31.48	94.10	19.7093
2721	41	RUSK		31.48	95.09	17.1421
2722	41	EL PASO WSO	R	31.48	106.24	0.0366
2723	41	COLEMAN		31.50	99.26	2.6019
2724	41	WHITNEY DAM		31.51	97.22	8.7833
2725	41	MIDLAND WSO	//R	31.57	102.11	0.1090
2726	41	LA TUNA 1 S		31.58	106.36	0.0908
2727	41	HICO		31.59	98.02	6.6495
2728	41	HILLSBORO		32.01	97.07	9.8798
2729	41	MIDLAND 4 ENE		32.01	102.01	0.1717
2730	41	CORSICANA		32.05	96.28	12.6209
2731	41	DUBLIN		32.06	98.20	6.8356
2732	41	RISING STAR		32.06	98.58	4.4163
2733	41	HENDERSON		32.11	94.48	17.2371
2734	41	BIG SPRING		32.15	101.27	0.5629
2735	41	CLEBURNE		32.20	97.24	7.9469
2736	41	WAXAHACHIE		32.24	96.51	11.0671
2737	41	ABILENE WSO	//R	32.25	99.41	1.9190
2738	41	ROSCOE		32.27	100.32	1.6700
2739	41	MARSHALL		32.32	94.21	19.1921
2740	41	KAUFMAN 3 SE		32.33	96.16	13.7363
2741	41	WILLS POINT		32.42	96.01	17.5271
2742	41	LAMESA 1 SSE		32.42	101.56	0.3682
2743	41	SNYDER		32.43	100.55	0.8168
2744	41	SEMINOLE		32.43	102.40	0.3347
2745	41	GILMER 2 W		32.44	94.59	18.6724
2746	41	ALBANY		32.44	99.18	3.2886
2747	41	WEATHERFORD		32.46	97.49	7.8519
2748	41	MINERAL WELLS FAA AP		32.47	98.04	5.6707
2749	41	DALLAS FAA	//R	32.51	96.51	9.7708
2750	41	DALLAS-FORT WORTH REG WSO		32.54	97.02	6.7013

PA-SCORE

REFERENCE 9

NFS / NATIONAL SOIL SERVICES, INC. CONSULTING ENGINEERS
DALLAS/FORT WORTH • HOUSTON • LONGVIEW • TAMPA/CLEARWATER
4087 SHILLING WAY • DALLAS, TEXAS 75224 • 330-9211

SOILS ENGINEERING REPORT

GROUNDWATER QUALITY ASSESSMENT PLAN
GNB BATTERY PLANT
FARMERS BRANCH, TEXAS

December 14, 1983
Job No. D-80154-8

Gould, Inc.
1110 Highway 110
Mendota Heights, Minnesota 55165

Attention: Mr. Everett Milton
Supervisor Facilities Planning

Gentlemen:

Presented herein is the groundwater quality assessment program required for compliance with Texas Water Development Board Industrial Solid Waste Rules, Texas Administrative Code (TAC), Section 335.194 (relating to Preparation, Evaluation, and Response) for the above-referenced facility. This plan is submitted in accordance with the verbal request and authorization of Mr. Everett Milton, as documented by Purchase Order No. 874-51183 dated November 15, 1983.

PURPOSE AND SCOPE

The purpose of this plan is to describe a groundwater quality assessment program that is more comprehensive than that described in TAC Sections 335.192 (relating to Groundwater Monitoring System) and Section 335.193 (relating to Sampling and Analysis) capable of determining:

1. Whether hazardous waste or hazardous waste constituents have entered the groundwater;
2. The rate and extent of migration of hazardous waste or hazardous waste constituents in the groundwater; and

3. The concentrations of hazardous waste or hazardous waste constituents in the groundwater.

The scope of this plan includes the evaluation of site utilization history, geology, hydrology, topography, containment measures and chemical analysis of both surface water and soil samples. Included in the groundwater quality assessment plan are specifications for:

1. The number, location and depth of wells;
2. Sampling and analytical methods for those hazardous wastes or hazardous waste constituents handled in the facility;
3. Evaluation procedures, including any use of previously gathered groundwater quality information; and
4. A schedule of implementation.

SITE DESCRIPTION

The project site is located in northeast Dallas County in an area underlain by alluvium and fluviatile terrace deposits in the Trinity River basin. These deposits consist of approximately 15 to 20 feet of silty clay, sand and gravel which are in turn underlain by highly plastic clay shale of the Eagle Ford formation. The site is flat to very gently sloping from north to south with a maximum surface gradient of approximately two percent. The local area has been extensively strip-mined for sand and gravel. Reclamation of the area has required extensive backfilling. Very few of the natural deposits above the groundwater table are believed to be undisturbed throughout the entire plant site. The static groundwater table appears to fluctuate between approximately five and ten feet below present grade. (Interpretations of groundwater contours based on a survey of monitoring well elevation differences and recorded depths of static groundwater elevations at equilibrium for the preceding ten months are presented on Plates 1 through 4 in the attachments to this submittal).

GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring has been conducted on site for several years in two, and more recently, a total of five monitoring wells co-located with the waste management area on site. The two monitoring wells located on the east side and adjacent to the surface impoundment area were recently upgraded to include a surface seal and steel security cover. All five wells have been pumped and sampled quarterly beginning in March of 1982.

Results indicate that the specific conductance levels in representative groundwater samples have consistently been two to three times higher in the two monitor wells located on the east side and adjacent to the surface impoundment area. The concentrations of sodium and manganese have also appeared consistently higher in these same two wells. In general, chlorides and sulfates have been detected in all five wells at levels slightly to well above the Texas State Health Department Primary and Secondary Drinking Water Standards. However, it is significant to note that none of the parameters observed at concentrations above the interim primary or secondary drinking water standards are listed by the U. S. Environmental Protection Agency (U. S. E. P. A.) as being hazardous wastes or hazardous waste constituents.

In accordance with the Texas Administrative Code (TAC) Section 335.194(d)(1), a significant increase (difference) in the concentration or level of specific conductance, sodium and manganese has been detected in representative samples obtained from monitoring wells MW-N and MW-S located east of and adjacent to the waste management area as compared to samples obtained from the upgradient monitor wells, MW-1A and MW-3A. Accordingly, written notification of this observation must be submitted to the Execuive Director of the Texas Department of Water Resources (TDWR) which states that the facility may be affecting groundwater quality. Additionally, the owner or operator is required to develop and submit a specific plan for groundwater quality assessment in accordance with TAC Section 335.194(d).

GROUNDWATER QUALITY ASSESSMENT PLAN

The following plan is submitted in accordance with TAC Section 335.194 (relating to Preparation, Evaluation, and Response).

Groundwater Gradient Determination

Determination of groundwater gradients should be accomplished to verify or modify the existing groundwater monitoring system by installing several piezometers and monitoring the groundwater elevations in widely dispersed locations within the site boundary. The number of piezometers should be sufficient to allow development of groundwater contours across the entire site. It is recommended that approximately seven piezometers be installed to the depth of the underlying Eagle Ford shale (aquiclude) at the approximate locations shown on Plate 5. A ground level survey of these installations should be performed to document the relative elevation differences. Following equilibration with the static groundwater table, the depth at each location should be recorded and, along with groundwater elevation data obtained from the existing monitoring wells, contours of groundwater elevations should be developed. Should these contours indicate that a minimum of one monitoring well is not located upgradient and that a minimum of three monitoring wells are not located downgradient to the waste management area, the contours should be used to properly locate the required number of new wells.

Sampling and Analytical Methods

Installation of each piezometer should include the sampling of soil formations from the surface to the depth of the underlying shale aquiclude. Samples from each location should be visually identified and labeled as to soil type, depth, location and date of acquisition. Each soil sample should be tested for chemical composition in accordance with accepted

U. S. E. P. A. methods and procedures. Chemical analysis should include evaluation of the following parameters:

1. pH
2. conductivity
3. sulfate
4. chloride
5. lead (leachable)

Should assessment of groundwater gradients identify the need for additional groundwater monitoring wells, the well(s) should be installed as soon as technically feasible and sampled in accordance with TAC Sections 335.193 and 335.194. Analyses should be compared with all previous groundwater quality determinations to assess the need for further studies. Results should be submitted to the Executive Director, TDWR, in accordance with TAC Section 335.195 (relating to Recordkeeping and Reporting).

Evaluation Procedures

Evaluation of the results of soil and water sample analyses should be based on the previously reported groundwater quality analyses and the type of waste(s) managed on site. The need for additional sample acquisition and testing should be defined in accordance with the TAC Section 335.194.

Additionally, should the waste management area be identified as a source of contaminants identified in samples obtained during this assessment program, further subsurface sampling may be required to define the vertical and lateral extent of contaminant migration. These additional studies will generally be limited to locations accessible on site. However, should hazardous waste or hazardous waste constituents be identified, the scope of these studies may require evaluation of off-site locations. The scope of such additional studies should be defined in consultation with the TDWR.

Implementation Schedule

Implementation of the approved groundwater assessment plan should commence as soon as the results of analyses of downgradient groundwater samples obtained in accordance with TAC Section 335.194(c) confirm a statistically significant increase (or pH decrease) in comparison with the initial background arithmetic mean. A bar chart which indicates the time required for each task identified below and a schedule for completion of the groundwater quality assessment plan as submitted herein is presented on Plate 6. Eleven tasks are identified which include the following:

1. Setting piezometers (approximately seven) and obtaining both surface and subsurface samples;
2. Performing a surface survey to determine elevation differences between all piezometer locations;
3. Laboratory analyses of soil and surface water samples;
4. Assessment of laboratory results;
5. Piezometer water sample acquisition and testing (if required);
6. Development of groundwater contours;
7. Installation of additional monitoring wells, if required;
8. Sample the new monitoring well(s) and analyze the samples in accordance with TAC Section 335.193;
9. Additional sampling to determine the rate and extent of the hazardous waste or hazardous waste constituents in the groundwater, if required;
10. Additional chemical analyses, if required; and
11. Reporting results and making recommendations as required.

Should the groundwater contours confirm that the existing groundwater monitoring system is adequate, task numbers 7 and 8 will be eliminated. Should the results of soil quality assessment for upgradient locations reveal contaminants present at concentrations roughly equivalent to those observed downgradient to the waste management area, the need

for task number 5 will be eliminated. Should no hazardous wastes or hazardous waste constituents from the facility be detected in the groundwater environment downgradient to the on-site waste management area, the need for task numbers 9 and 10 will be eliminated.

The absence of detectable hazardous waste or hazardous waste constituents from the facility in the groundwater environment will allow the reinstatement of the indicator evaluation program described in TAC Section 335.193. However, the owner must notify the Executive Director, TDWR, in the report containing the groundwater quality assessment.

The findings of the groundwater quality assessment investigation in accordance with this plan must be completed and reported in accordance with TAC Section 335.194(d)(5). Also, the owner must continue to evaluate the data on groundwater surface elevations at least annually to determine whether the requirements under TAC Section 335.192 (relating to Groundwater Monitoring System) for locating the monitoring wells continue to be satisfied. The owner must immediately modify the number, location, or depth of the monitoring wells to bring the groundwater monitoring system into compliance should this evaluation show that TAC Section 335.192 is no longer satisfied.

This groundwater quality assessment plan does not relieve the owner of any recordkeeping and reporting requirements outlined in TAC Section 335.195.

Should you have any questions or require additional assistance, please call.

Very truly yours,

NFS SERVICES, INC.

William Prikryl, P. E.
Project Engineer

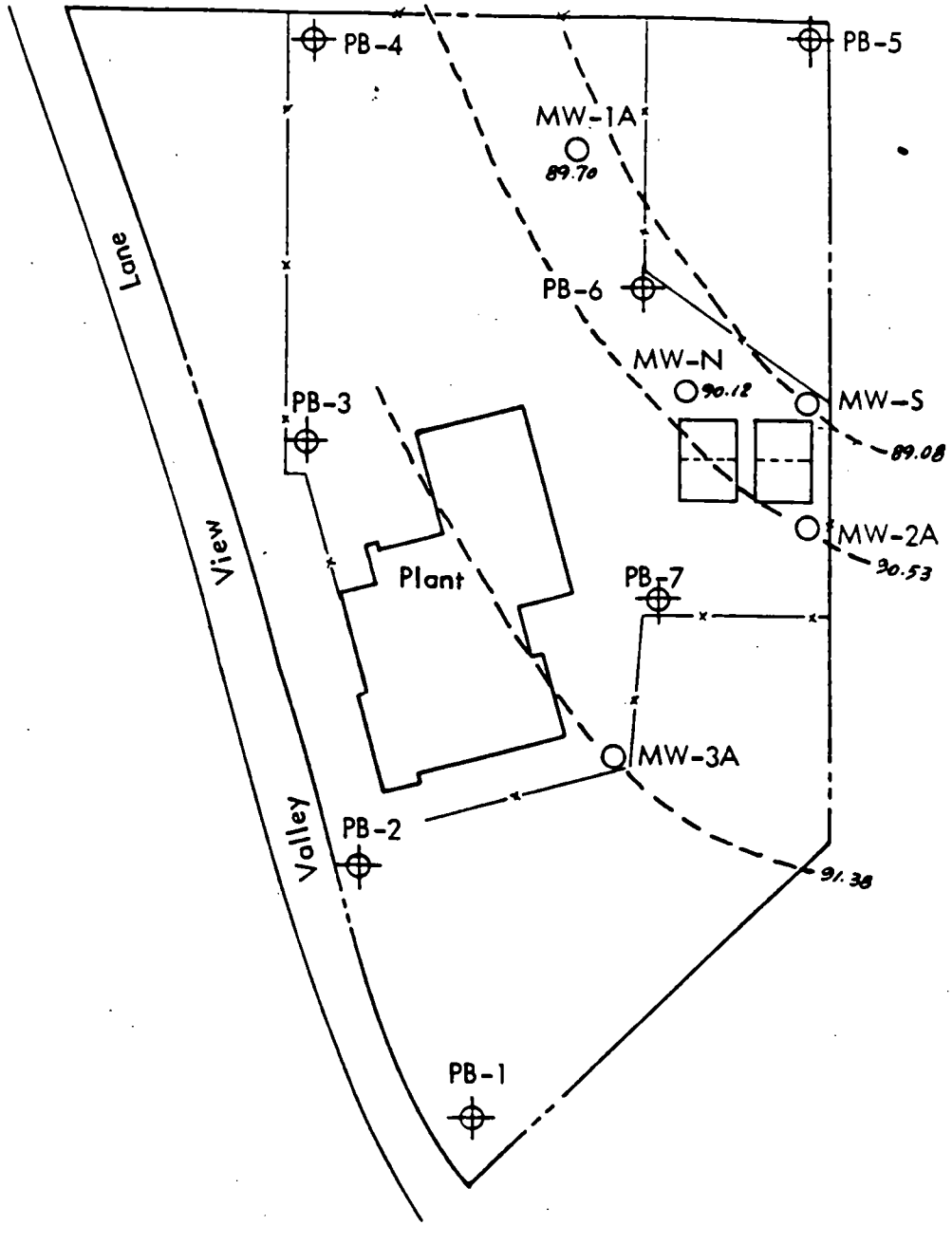
WP/lcr

Copies submitted: 3

ILLUSTRATIONS

N

Not to Scale



Legend

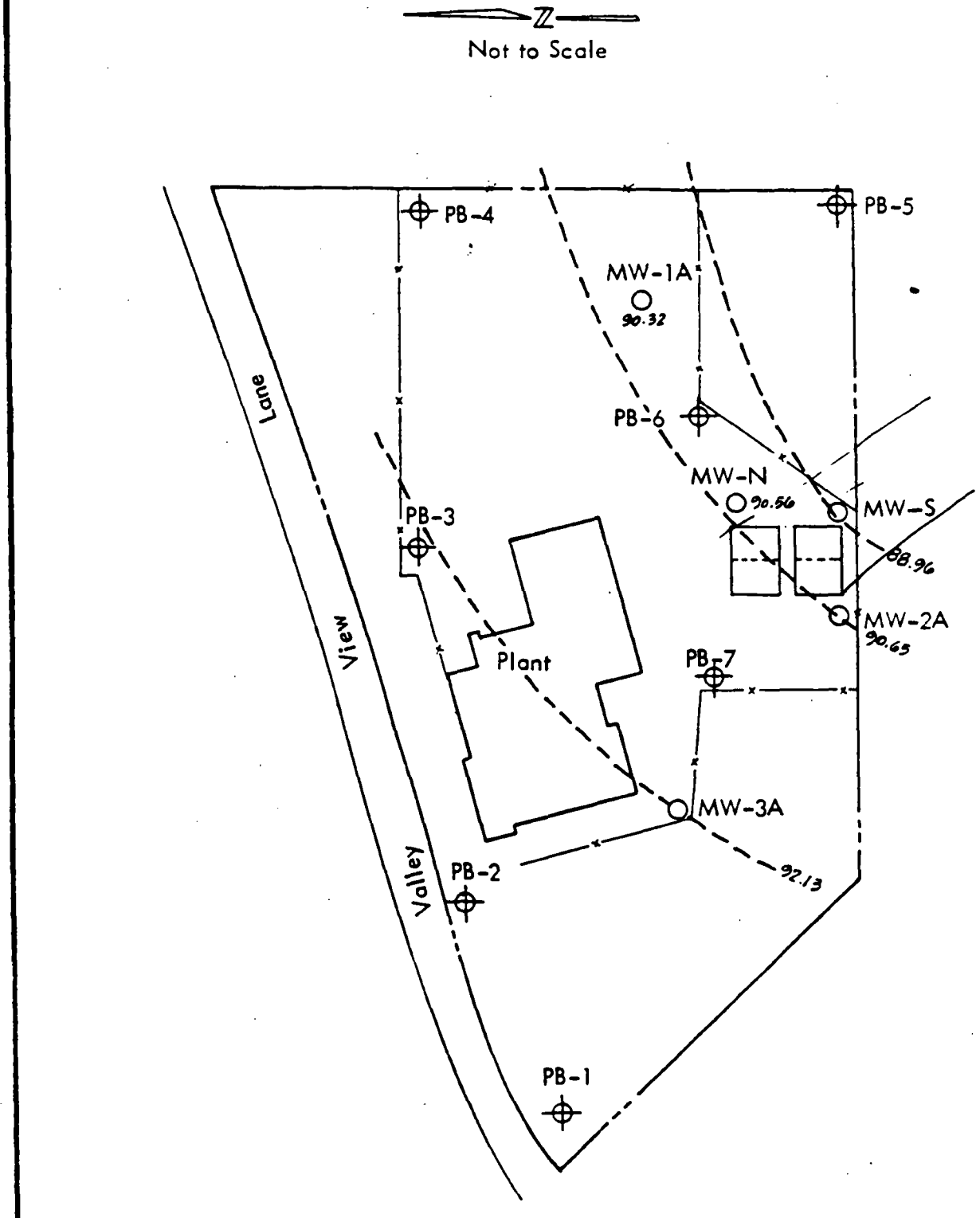
○ Existing monitor wells

⊕ Proposed piezometers

NOVEMBER 28, 1983
INTERPRETED GROUNDWATER CONTOURS

NFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 1



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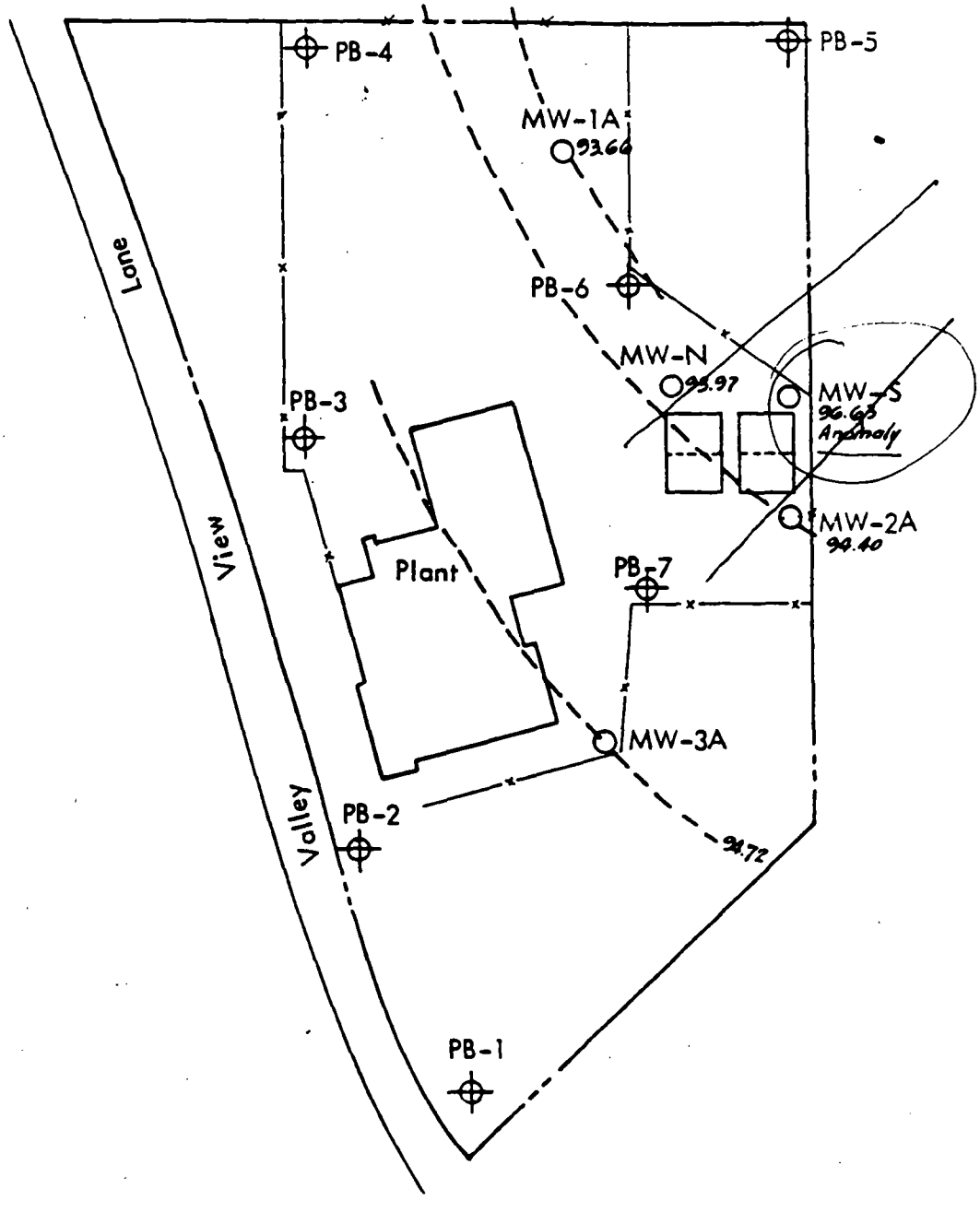
○ Existing monitor wells

⊕ Proposed piezometers

OCTOBER 21, 1983
INTERPRETED GROUNDWATER CONTOURS

WFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 2



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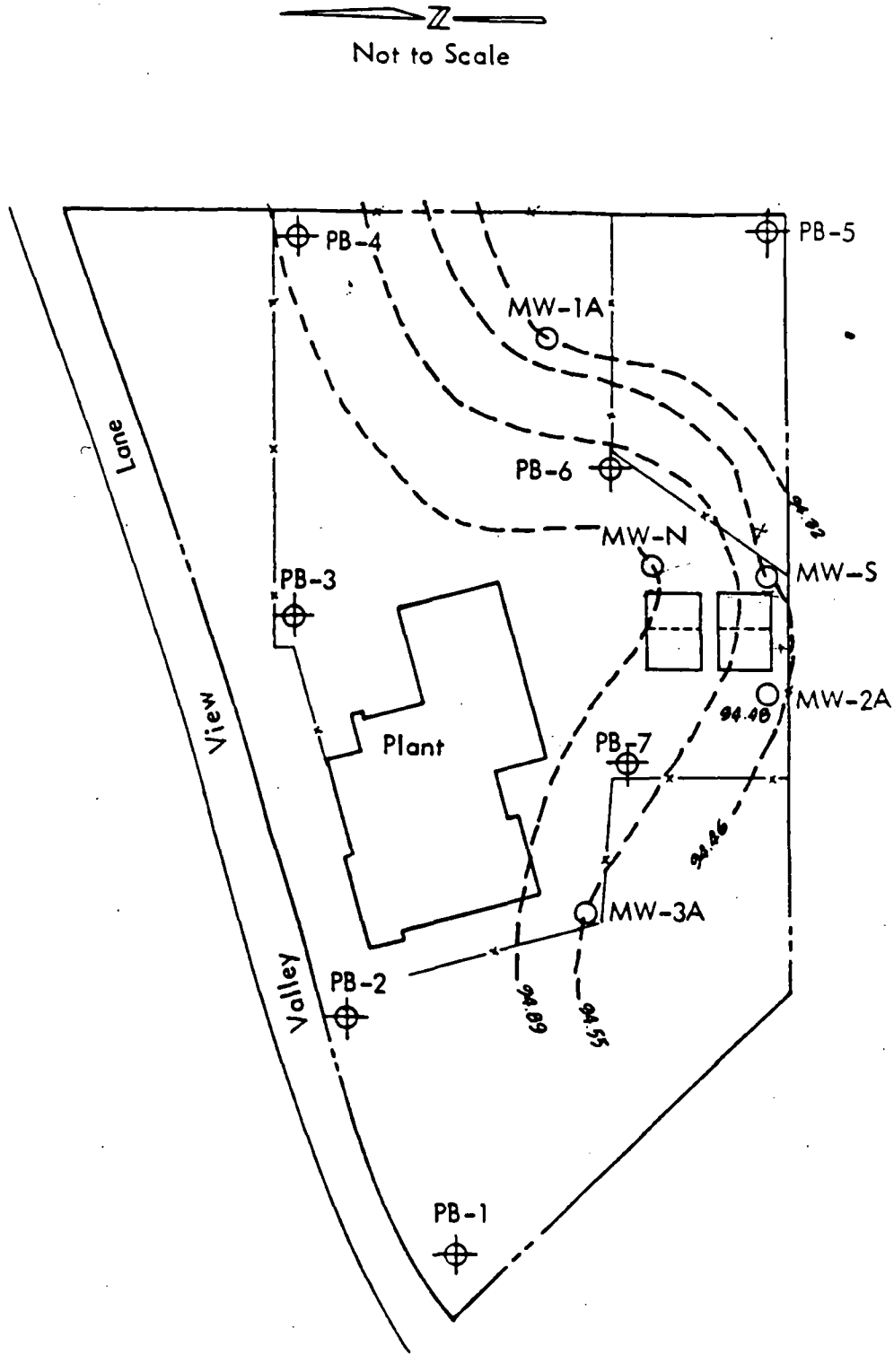
○ Existing monitor wells

⊕ Proposed piezometers

JULY 7, 1983
INTERPRETED GROUNDWATER CONTOURS

NFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 3



Legend

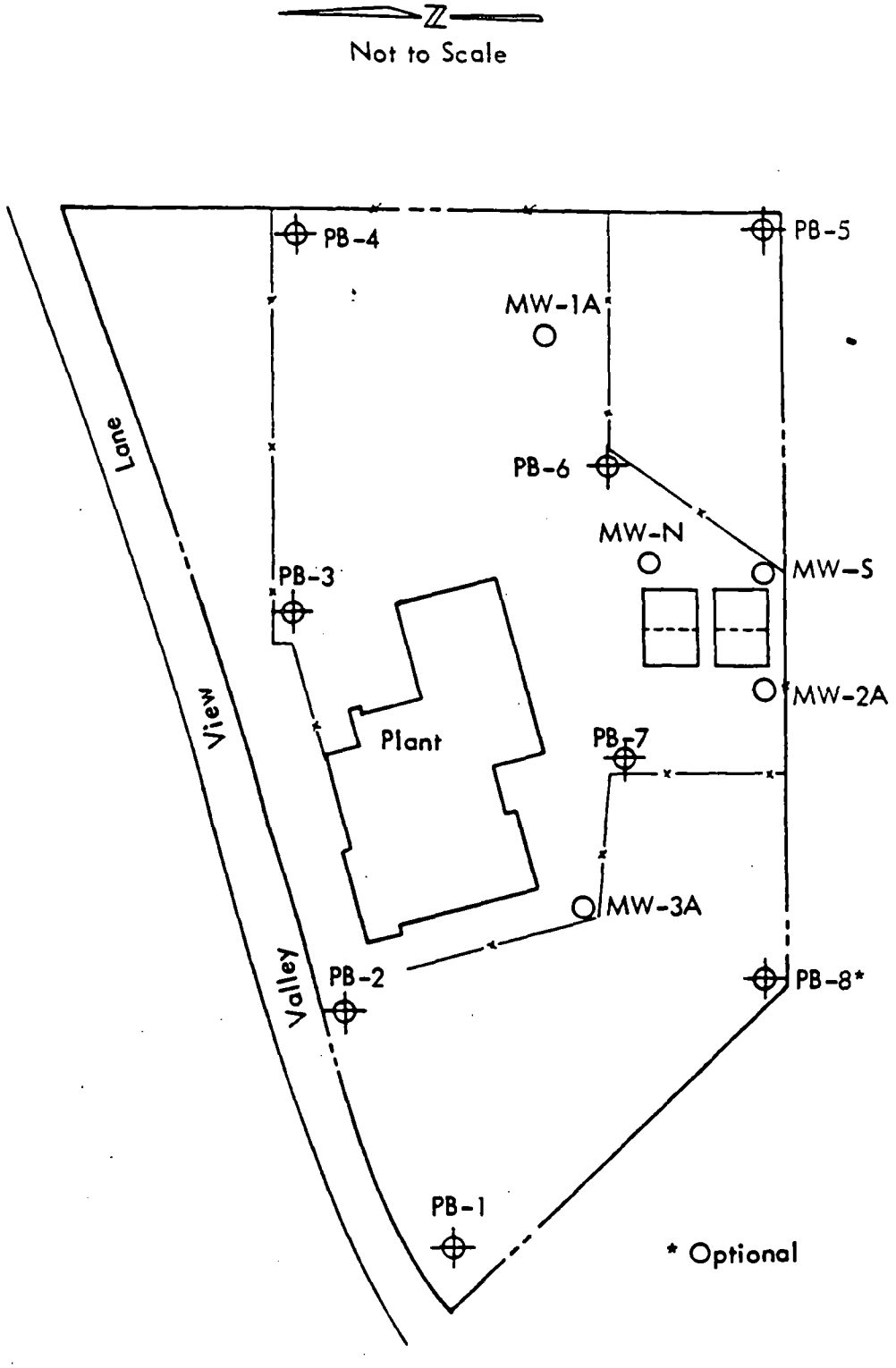
○ Existing monitor wells

⊕ Proposed piezometers

MARCH 25, 1983
INTERPRETED GROUNDWATER CONTOURS

NFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 4



Legend

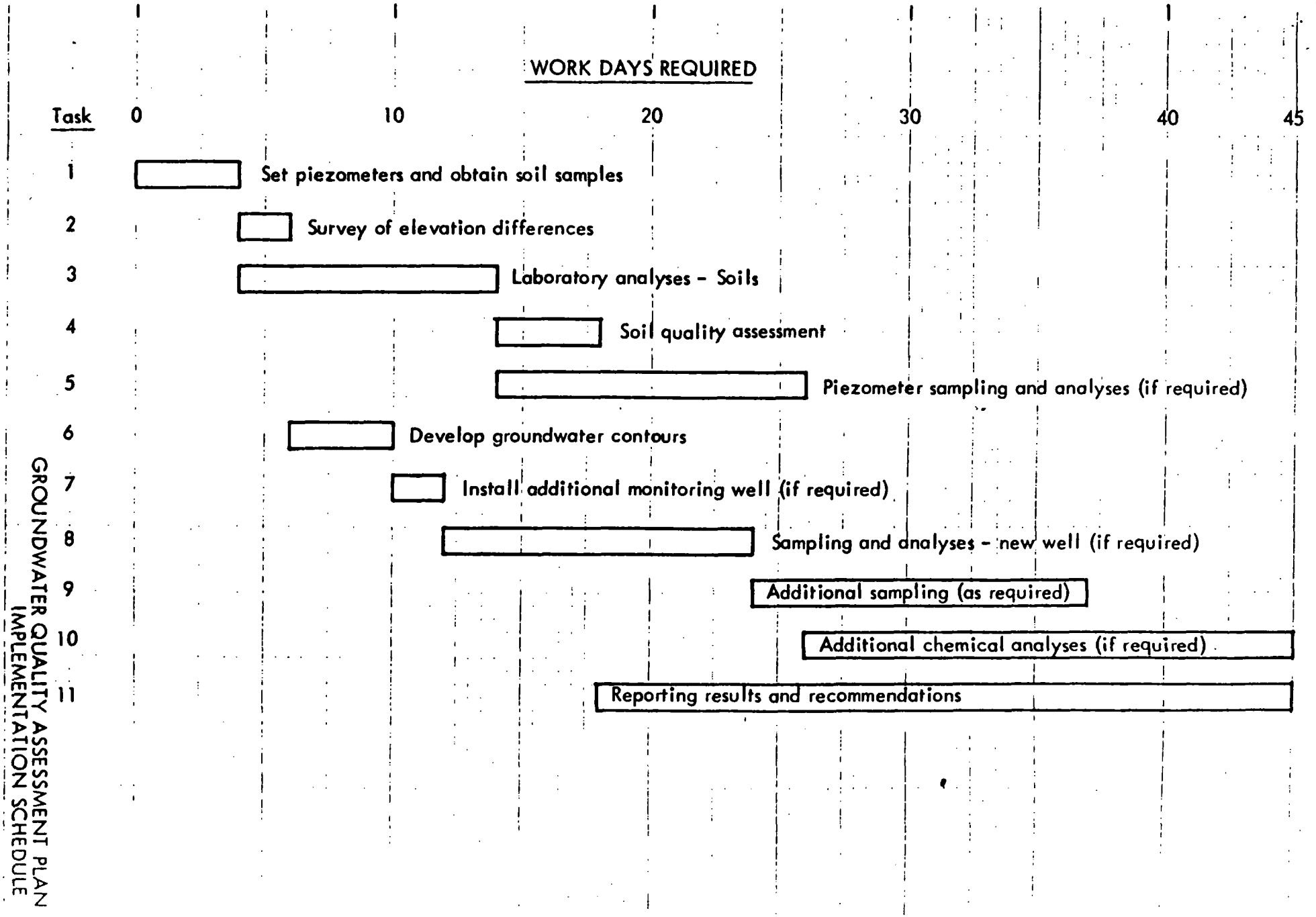
○ Existing monitor wells

⊕ Proposed piezometers

PLAN OF PIEZOMETER LOCATIONS

NFS SERVICES, INC.
CONSULTING ENGINEERS

PLATE 5



GROUNDWATER QUALITY ASSESSMENT PLAN
IMPLEMENTATION SCHEDULE

PLATE 6

PA-SCORE

REFERENCE 10

U. S. Environmental Protection Agency
Region VI - Water Supply Branch (6W-SP)

CURRENT AND PROPOSED NATIONAL PRIMARY AND SECONDARY DRINKING WATER REGULATIONS

AND

HEALTH ADVISORIES FOR OTHER CONTAMINANTS

JANUARY 18, 1991

CURRENT AND PROPOSED SECONDARY DRINKING WATER REGULATIONS

CONTAMINANT	MCL
Aluminum (proposed)	0.05 to 0.2 mg/l
Chloride	250 mg/l
Color	15 (color units)
Copper	1.0 mg/l
Corrosivity	noncorrosive
Fluoride	2.0 mg/l
Foaming Agents	0.5 mg/l
Iron	0.3 mg/l
Manganese	0.05 mg/l
Odor	3 threshold odor number
pH	6.5 - 8.5
Silver (proposed)	0.1 mg/l
Sulfate	250 mg/l
Total Dissolved Solids (TDS)	500 mg/l
Zinc	5 mg/l

HELPFUL PHONE NUMBERS

EPA HQ. Washington, D. C.
Safe Drinking Water Hotline 800-426-4791

EPA REGION 6 Dallas TX
24 Hour Emergency Hotline 214-655-2222
Water Supply Branch 214-655-7155
(FTS Prefix is 255)

ARKANSAS DEPARTMENT OF HEALTH
24 Hour Emergency Number 501-661-2136
Director, Division of Engineering 501-661-2623

LOUISIANA DEPARTMENT OF HEALTH AND HOSPITALS
Director, Division of Engineering 504-568-5100

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION
Health Program Manager, Drinking Water Section 505-827-2778

OKLAHOMA STATE DEPARTMENT OF HEALTH
Administrative Chief, Water Quality Service 405-271-5205

TEXAS DEPARTMENT OF [illegible]

CONTAMINANT	MCLG	MCL	RISK AT MCL
Lead		0.05	
*Lindane	0.0002	0.0002	
Mercury	0.002	0.002	
*Methoxychlor	0.04	0.04	
*Monochlorobenzene	0.1	0.1	
Nitrate	10	10	
*Nitrate plus Nitrite	10	10	
*Nitrite	1	1	
*PCBs	0	0.0005	100E-6
Radium 226 & 228		5.0 (1)	20E-6
*Selenium	0.05	0.05	
*Styrene	0.1	0.1	
*Tetrachloroethylene	0	0.005	7E-6
*Toluene	1	1	
Total Trihalomethane		0.10	16E-6
*Toxaphene	0	0.003	165E-6
Trichloroethane 1,1,1-	0.20	0.20	
Trichloroethylene	0	0.005	2E-6
Vinyl chloride	0	0.002	130E-6
*Xylene	10	10	

Note:

Units are milligrams per liter

(1) Picocuries per liter

(2) Millirem per year

(3) 0.05% dosed at 1 mg/l

(4) 0.01% dosed at 20 mg/l

*Effective July 1992, supercede current MCLs for Cd-0.01, Cr-0.05, Se-0.01, 2.4.5-TP-0.01, 2,4-D-0.1, Lindane-0.004, Methoxychlor-0.1 and Toxaphene-0.005 (all in mg/l).

PA-SCORE

REFERENCE 11

Texas Water Commission
Hazardous and Solid Waste Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

QUARTERLY GROUND WATER MONITORING REPORT FOR HAZARDOUS WASTE FACILITIES (INTERIM PERMIT STATUS)

TWC Registration No. or TSD Facility Permit No.: 31697

EPA ID No.: TXD007331879

Company Well No.: MW1A

Grab(G) or Composite(C): U | Year: 90 | Sample Event: 01

To be completed by the owner/operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste. (See reverse side for instructions.)

Company Name: GNB, Inc. Phone: 214,243-1011

Business Address: 1880 Valley View Ln., Farmers Branch, Tx Zip: 75234

TABLE 1 - SAMPLE EVENT INFORMATION

Sample Date (MM-DD-YY)	Parameter Code	Sample Method	Parameter Code	Groundwater Elevation (ft.)
03-09-90	84077	SPUM	72020	428.20

TABLE 2 - CONTAMINATION INDICATOR PARAMETERS

	Replicate Number	Parameter Code	pH Standard Units Grab	Parameter Code	Conductivity µmhos Grab	Parameter Code	Total Organic Carbon mg/l Grab	Parameter Code	Total Organic Halogen mg/l Grab
Replicate	01	00400	6.62	00095	3500	0068	33.3		0.45
Replicate	02	00400	6.58	00095	3250	0068			0.44
Replicate	03	00400	6.57	00095	3250	0068			0.45
Replicate	04	00400	6.58	00095	3200	0068			0.38
Mean	70	00400	6.59	00095	3300	0068	33.3		0.43
Variance	71	00400	0.0005	00095	18333	0068	0.00007		0.001
T Value	72	00400	-54.34	00095	-10.13	0068	5940.013		-8.911
*Annual Mean	90	00400	7.19	00095	3986	0068	9.05		0.58
*Annual Variance	91	00400	0.08	00095	114361.2	0068	60.57		0.70

*Instruction 68

SAMPLE ANALYSES QUESTIONS

1) Were all samples filtered prior to analysis? ☒ yes ☐ no
If no, indicate which samples were not filtered. _____

2) Was total organic Halogen measured with a DX20 instrument? ☐ yes ☒ no
If no, explain Used DX-15 instrument

3) Which method was used for the Coliform Bacteria test? ☐ membrane filter
☐ fermentation tube ☐ other None

TABLE 3 - GROUND WATER QUALITY INDICATOR PARAMETERS

Replicate Number	Parameter Code	Chloride mg/l Grab	Parameter Code	Iron mg/l Grab	Parameter Code	Manganese mg/l Grab	Parameter Code	Phenols mg/l Grab	Parameter Code	Sodium mg/l Grab	Parameter Code	Sulfate mg/l Grab
01	00940		T104		T105		T273		0099		0094	468.

TABLE 4 - PRIMARY DRINKING WATER STANDARDS PARAMETERS

Parameter Code	Arsenic mg/l Grab	Parameter Code	Barium mg/l Grab	Parameter Code	Cadmium mg/l Grab	Parameter Code	Chromium mg/l Grab	Parameter Code	Fluoride mg/l Grab	Parameter Code	Lead mg/l Grab	Grab Type
T100		T100		T102		T103		0095		T10	0.005	01
Parameter Code	Mercury mg/l Grab	Parameter Code	Nitrate mg/l Grab	Parameter Code	Selenium mg/l Grab	Parameter Code	Silver mg/l Grab	Parameter Code	Endrin mg/l Grab	Parameter Code	Lindane mg/l Grab	Grab Type
		0081		T114		T107		T939				02
Parameter Code	Methoxychlor mg/l Grab	Parameter Code	Toxaphene mg/l Grab	Parameter Code	2,4-D mg/l Grab	Parameter Code	2,4,5-TP Silvex mg/l Grab	Parameter Code	Radium pCi/l Grab	Parameter Code	Radium Counting Error	Grab Type
T94		T94		T973				11503		11504		03
Parameter Code	Gross Alpha pCi/l Grab	Parameter Code	Gross Alpha Counting Error	Parameter Code	Gross Beta pCi/l Grab	Parameter Code	Gross Beta Counting Error	Parameter Code	Coliform Bacteria #/100 ml Grab	Parameter Code	Lead, AGA mg/l	Grab Type
0140		0159		0358		0389		3150			0.008	04

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

Prepared by: [signature] P.E. Signature of Authorized Agent: _____ Date: April 26, 1990

TWC-0010 (Rev. 10-03-88)

TEXAS WATER COMMISSION
Hazardous and Solid Waste Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

QUARTERLY GROUND WATER MONITORING REPORT FOR HAZARDOUS WASTE FACILITIES (INTERIM PERMIT STATUS)

TWC Registration No. or TSD Facility Permit No: 31697
EPA ID No: TXD007331879
Company Well No: MW-2A
Quadrant (1) or (2): D Year 19 90 Sample Event: 01

To be completed by the owner/operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste. (See reverse side for instructions.)

Company Name: GNB, Inc Phone: (214)243-1011
Business Address: 1880 Valley View Ln., Farmers Branch, Tx Zip: 75234

TABLE 1 - SAMPLE EVENT INFORMATION

Sample Date MM-DD-YY	Parameter Code	Sample Method	Parameter Code	Groundwater Elevation (ft.)
03-09-90	84077	SPUM	72020	427.62

TABLE 2 - CONTAMINATION INDICATOR PARAMETERS

	Replicate Number	Parameter Code	PH Standard Units Grab	Parameter Code	Conductivity µmhos Grab	Parameter Code	Total Organic Carbon mg/l Grab	Parameter Code	Total Organic Halogen mg/l Grab
Replicate	01	00400	6.74	00095	3500	0068	91.3		0.04
Replicate	02	00400	6.76	00095	3500	0068	.		0.04
Replicate	03	00400	6.76	00095	3500	0068	.		0.04
Replicate	04	00400	6.76	00095	3500	0068	.		0.05
Mean	70	00400	6.76	00095	3500	0068	91.3		0.0425
Variance	71	00400	0.0001	00096	0.007	0068	0.00007		0.000025
T Value	72	00400	-1103.00	00095	-6246.2	0068	19265.237		-115.000
*Annual Mean	90	00400	7.27	00095	3755	0068	12.65		0.33
*Annual Variance	91	00400	0.08	00095	68398	0068	53.45		0.3766

* See Instruction 68

SAMPLE ANALYSES QUESTIONS

1) Were all samples filtered prior to analysis? ☒ yes ☐ no
If no, indicate which samples were not filtered. _____

2) Was total organic Halogen measured with a DX20 instrument? ☐ yes ☒ no
If no, explain: Used DX-15 instrument

3) Which method was used for the Coliform Bacteria test? ☐ membrane filter ☐ fermentation tube ☐ other: None

TABLE 3 - GROUND WATER QUALITY INDICATOR PARAMETERS

Replicate Number	Parameter Code	Chloride mg/l Grab	Parameter Code	Iron mg/l Grab	Parameter Code	Manganese mg/l Grab	Parameter Code	Phenols mg/l Grab	Parameter Code	Sodium mg/l Grab	Parameter Code	Sulfate mg/l Grab
01	00940		T104		T105		T273		009		0094	960.

TABLE 4 - PRIMARY DRINKING WATER STANDARDS PARAMETERS

Parameter Code		Parameter Code		Parameter Code		Parameter Code		Parameter Code		Parameter Code		Parameter Code		Card Type
T100	Arsenic mg/l Grab	T100	Barium mg/l Grab	T102	Cadmium mg/l Grab	T103	Chromium mg/l Grab	0095	Fluoride mg/l Grab	T10	Lead mg/l Grab < 0.005			01
	Mercury mg/l Grab	006	Nitrate mg/l Grab	T114	Selenium mg/l Grab	T107	Silver mg/l Grab	T938	Endrin mg/l Grab		Lindane mg/l Grab			02
T94	Methoxychlor mg/l Grab	T94	Toxaphene mg/l Grab	T973	2,4-D mg/l Grab		2,4,5-TP Silvex mg/l Grab	11503	Radium pCi/l Grab	11504	Radium Counting Error			03
0	Gross Alpha pCi/l Grab	0150	Gross Alpha Counting Error	0350	Gross Beta pCi/l Grab	0350	Gross Beta Counting Error	3150	Coliform Bacteria 1/100 ml Grab		Lead, HGA mg/l < 0.005			04

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

William D. Lee Jr.
Prepared by

Signature of Authorized Agent

April 26, 1990
Date

TWC-0810 (Rev. 10-03-85)

P O Box 13087, Capitol Station
Austin, Texas 78711-3087

TWC Registration No. or TSD Facility Permit No. 31697

EPA ID No. TXD007331879

Company Well No. MW3A

Gradient (U or D) U Year 19 90 Sample Event 01

QUARTERLY GROUND WATER MONITORING REPORT FOR HAZARDOUS WASTE FACILITIES (INTERIM PERMIT STATUS)

To be completed by the owner/operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste. (See reverse side for instructions.)

Company Name: GNB, Inc. Phone: (214)243-1011

Business Address: 1880 Valley View Ln., Farmers Branch, Tx Zip: 75234

TABLE 1 - SAMPLE EVENT INFORMATION

Sample Date MM-DD-YY	Parameter Code	Sample Method	Parameter Code	Groundwater Elevation (ft.)
03-09-90	84077	SPUM	72020	428.28

TABLE 2 - CONTAMINATION INDICATOR PARAMETERS

	Replicate Number	Parameter Code	pH Standard Units Grab	Parameter Code	Conductivity µmhos Grab	Parameter Code	Total Organic Carbon mg/l Grab	Parameter Code	Total Organic Halogen mg/l Grab
Replicate	01	00400	6.85	00095	1750	0068	311.5		0.02
Replicate	02	00400	6.90	00095	1750	0068	.		0.01
Replicate	03	00400	6.93	00095	1750	0068	.		0.02
Replicate	04	00400	6.97	00095	1750	0068	.		0.01
Mean	70	00400	6.94	00095	1750	0068	311.5		0.015
Variance	71	00400	0.0002	00095	0.0007	0068	0.00007		-22.517
T Value	72	00400	-17.30	00095	-43478	0068	3735.472		0.08
Annual Mean	90	00400	7.35	00095	35225	0068	116.25		0.02
Annual Variance	91	00400	0.08	00095	31086.33	0068	29.581		

(See instruction 68)

SAMPLE ANALYSES QUESTIONS

1) Were all samples filtered prior to analysis? ☒ yes ☐ no
If no, indicate which samples were not filtered. _____

2) Was total organic Halogen measured with a DX20 instrument? ☐ yes ☒ no
If no, explain Used DX-15 instrument

3) Which method was used for the Coliform Bacteria test? ☐ membrane filter ☐ fermentation tube ☐ other None

TABLE 3 - GROUND WATER QUALITY INDICATOR PARAMETERS

Replicate Number	Parameter Code	Chloride mg/l Grab	Parameter Code	Iron mg/l Grab	Parameter Code	Manganese mg/l Grab	Parameter Code	Phenols mg/l Grab	Parameter Code	Sodium mg/l Grab	Parameter Code	Sulfate mg/l Grab
01	00940		T104		T105		T273		009		0094	298.

TABLE 4 - PRIMARY DRINKING WATER STANDARDS PARAMETERS

Parameter Code	Arsenic mg/l Grab	Parameter Code	Barium mg/l Grab	Parameter Code	Cadmium mg/l Grab	Parameter Code	Chromium mg/l Grab	Parameter Code	Fluoride mg/l Grab	Parameter Code	Lead mg/l Grab	Card Type
T100		T100		T102		T103		0095		T10	0.000	01
Parameter Code	Mercury mg/l Grab	Parameter Code	Nitrate mg/l Grab	Parameter Code	Selenium mg/l Grab	Parameter Code	Silver mg/l Grab	Parameter Code	Endrin mg/l Grab	Parameter Code	Lindane mg/l Grab	Card Type
		008		T114		T107		T039				02
Parameter Code	Methoxychlor mg/l Grab	Parameter Code	Toxaphene mg/l Grab	Parameter Code	2,4-D mg/l Grab	Parameter Code	2,4,5-TP Silvex mg/l Grab	Parameter Code	Radium pCi/l Grab	Parameter Code	Radium Counting Error	Card Type
T94		T94		T973				11503		11504		03
Parameter Code	Gross Alpha pCi/l Grab	Parameter Code	Gross Alpha Counting Error	Parameter Code	Gross Beta pCi/l Grab	Parameter Code	Gross Beta Counting Error	Parameter Code	Coliform Bacteria 1/100 ml Grab	Parameter Code	Lead, HGA mg/l	Card Type
0		0155		0350		0359		3150			0.006	04

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

William Ludwig Jr. — Prepared By

_____ — Signature of Authorized Agent

April 26, 1990 — Date

TWC-0810 (Rev. 10-03-85)

TEXAS WATER COMMISSION
Hazardous and Solid Waste Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

TWC Registration No. or TSD Facility Permit No. 31697

EPA I.D. No. TXD007331879

Company Well No. MW-5

Gradient (U or D): D Year 19 90 Sample Event: 01

QUARTERLY GROUND WATER MONITORING REPORT FOR HAZARDOUS WASTE FACILITIES (INTERIM PERMIT STATUS)

To be completed by the owner/operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste. (See reverse side for instructions.)

Company Name: GNB, Inc. Phone: (214) 243-1011

Business Address: 1880 Valley View Ln., Farmers Branch, Tx Zip: 75234

TABLE 1 - SAMPLE EVENT INFORMATION

Sample Date MM-DD-YY	Parameter Code	Sample Method	Parameter Code	Groundwater Elevation (ft.)
03-09-90	84077	SPUN	72020	426.22

TABLE 2 - CONTAMINATION INDICATOR PARAMETERS

	Replicate Number	Parameter Code	PH Standard Units Grab	Parameter Code	Conductivity µmhos Grab	Parameter Code	Total Organic Carbon mg/l Grab	Parameter Code	Total Organic Halogen mg/l Grab
Replicate	01	00400	6.66	00095	8000	0068	451.9		0.09
Replicate	02	00400	6.70	00095	7750	0068	.		0.09
Replicate	03	00400	6.67	00095	7750	0068	.		0.141
Replicate	04	00400	6.69	00095	7750	0068	.		0.115
Mean	70	00400	6.68	00095	7812.5	0068	451.9		0.1175
Variance	71	00400	0.0003	00095	15625	0068	0.0007		0.001025
T Value	72	00400	-53.63	00095	64.92	0068	R144.553		1.3275
*Annual Mean	90	00400	7.27	00095	3755	0068	12.65		0.33
*Annual Variance	91	00400	0.08	00095	68398.0	0068	53.45		0.376

* See Instruction 6B

SAMPLE ANALYSES QUESTIONS

1) Were all samples filtered prior to analysis? ☒ yes ☐ no
If no, indicate which samples were not filtered. _____

2) Was total organic Halogen measured with a DX20 instrument? ☐ yes ☒ no
If no, explain Used DX-15 instrument

3) Which method was used for the Coliform Bacteria test? ☐ membrane filter ☐ fermentation tube ☐ other None

TABLE 3 - GROUND WATER QUALITY INDICATOR PARAMETERS

Replicate Number	Parameter Code	Chloride mg/l Grab	Parameter Code	Iron mg/l Grab	Parameter Code	Manganese mg/l Grab	Parameter Code	Phenols mg/l Grab	Parameter Code	Sodium mg/l Grab	Parameter Code	Sulfate mg/l Grab
01	00940		T104		T105		T273		929		0094	5dd.

TABLE 4 - PRIMARY DRINKING WATER STANDARDS PARAMETERS

Parameter Code	Arsenic mg/l Grab	Parameter Code	Barium mg/l Grab	Parameter Code	Cadmium mg/l Grab	Parameter Code	Chromium mg/l Grab	Parameter Code	Fluoride mg/l Grab	Parameter Code	Lead mg/l Grab	Card Type
T100		T100		T102		T103		0095		T10	<0.005	01
Parameter Code	Mercury mg/l Grab	Parameter Code	Nitrate mg/l Grab	Parameter Code	Selenium mg/l Grab	Parameter Code	Silver mg/l Grab	Parameter Code	Endrin mg/l Grab	Parameter Code	Lindane mg/l Grab	Card Type
		005		T114		T107		T939				02
Parameter Code	Methoxychlor mg/l Grab	Parameter Code	Toxaphene mg/l Grab	Parameter Code	2,4-D mg/l Grab	Parameter Code	2,4,5-TP Silvex mg/l Grab	Parameter Code	Radium pCi/l Grab	Parameter Code	Radium Counting Error	Card Type
T94		T94		T973				11503		11504		03
Parameter Code	Gross Alpha pCi/l Grab	Parameter Code	Gross Alpha Counting Error	Parameter Code	Gross Beta pCi/l Grab	Parameter Code	Gross Beta Counting Error	Parameter Code	Coliform Bacteria 1/100 ml Grab	Parameter Code	Lead, HGA mg/l	Card Type
		0150		0350		0350		3150			<0.005	04

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

William Neil Gale — April 26, 1990

Prepared by — Signature of Authorized Agent — Date

TWC-0810 (Rev. 10-03-89)

TEXAS WATER COMMISSION
Hazardous and Solid Waste Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

QUARTERLY GROUND WATER MONITORING REPORT FOR HAZARDOUS WASTE FACILITIES (INTERIM PERMIT STATUS)

TWC Registration No. or TSD Facility Permit No.: 31697

EPA ID No.: TXD007331879

Company Well No.: MW-N

Quarter (1st or 2nd): D Year 19: 90 Sample Event: 01

To be completed by the owner/operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste. (See reverse side for instructions.)

Company Name: CNB, Inc. Phone: (214)243-1011

Business Address: 1880 Valley View Ln., Farmers Branch, Tx Zip: 75234

TABLE 1 - SAMPLE EVENT INFORMATION

Sample Date MM-DD-YY	Parameter Code	Sample Method	Parameter Code	Groundwater Elevation (ft.)
03-09-90	84077	SPUM	72020	428.34

TABLE 2 - CONTAMINATION INDICATOR PARAMETERS

	Replicate Number	Parameter Code	pH Standard Units Grab	Parameter Code	Conductivity µmhos Grab	Parameter Code	Total Organic Carbon mg/l Grab	Parameter Code	Total Organic Halogen mg/l Grab
Replicate	01	00400	6.95	00095	5500	0068	31.4		0.09
Replicate	02	00400	6.93	00095	5500	0068	.		0.09
Replicate	03	00400	6.91	00095	5500	0068	.		0.06
Replicate	04	00400	6.93	00095	5500	0068	.		0.06
Mean	70	00400	6.93	00095	5500	0068	31.4		0.075
Variance	71	00400	0.0003	00095	0.0007	0068	0.00007		0.0003
T Value	72	00400	-4116K	00095	42743	0068	1.679		-29.445
*Annual Mean	90	00400	7.27	00095	3755	0068	12.65		0.33
Annual Variance	91	00400	01.08	00095	683988	0068	53.45		0.376

* See Instruction 68

SAMPLE ANALYSES QUESTIONS

1) Were all samples filtered prior to analysis? ☒ yes ☐ no
If no, indicate which samples were not filtered. _____

2) Was total organic Halogen measured with a OX20 instrument? ☐ yes ☒ no
If no, explain Used DX-15 Instrument

3) Which method was used for the Coliform Bacteria test? ☐ membrane filter
☐ fermentation tube ☐ other None

TABLE 3 - GROUND WATER QUALITY INDICATOR PARAMETERS

Replicate Number	Parameter Code	Chloride mg/l Grab	Parameter Code	Iron mg/l Grab	Parameter Code	Manganese mg/l Grab	Parameter Code	Phenols mg/l Grab	Parameter Code	Sodium mg/l Grab	Parameter Code	Sulfate mg/l Grab
01	00940		T104		T105		T273		008		0094	476.

TABLE 4 - PRIMARY DRINKING WATER STANDARDS PARAMETERS

Parameter Code	Arsenic mg/l Grab	Parameter Code	Barium mg/l Grab	Parameter Code	Cadmium mg/l Grab	Parameter Code	Chromium mg/l Grab	Parameter Code	Fluoride mg/l Grab	Parameter Code	Lead mg/l Grab	Card Type
T100		T100		T102		T103		0095		T10	<0.005	01
Parameter Code	Mercury mg/l Grab	Parameter Code	Nitrate mg/l Grab	Parameter Code	Selenium mg/l Grab	Parameter Code	Silver mg/l Grab	Parameter Code	Endrin mg/l Grab	Parameter Code	Lindane mg/l Grab	Card Type
		006		T114		T107		T038				02
Parameter Code	Methoxychlor mg/l Grab	Parameter Code	Toxaphene mg/l Grab	Parameter Code	2,4-D mg/l Grab	Parameter Code	2,4,5-TP Silvex mg/l Grab	Parameter Code	Radium pCi/l Gross	Parameter Code	Radium Counting Error	Card Type
T94		T94		T073				11503		11504		03
Parameter Code	Gross Alpha pCi/l Grab	Parameter Code	Gross Alpha Counting Error	Parameter Code	Gross Beta pCi/l Grab	Parameter Code	Gross Beta Counting Error	Parameter Code	Coliform Bacteria 1/100 ml Grab	Parameter Code	Lead, HGA mg/l	Card Type
50		0150		0350		0358		3150			<0.005	04

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete.

William Lindsey PE — April 26, 1990

Prepared by — Signature of Authorized Agent — Date

TWC-0810 (Rev. 10-03-85)

PA-SCORE

REFERENCE 12

RECORD OF COMMUNICATION

Reference 12

TYPE: Telephone Call **DATE:** 2/2/93 **TIME:** 1010

TO: Richard Cannon, Water Dept., City of Farmers Branch (214) 919-2597

FROM: B. Kendrick, Geologist, ICF Technology, Inc. (214) 979-3905

SUBJECT: Water Supply for the City of Farmers Branch

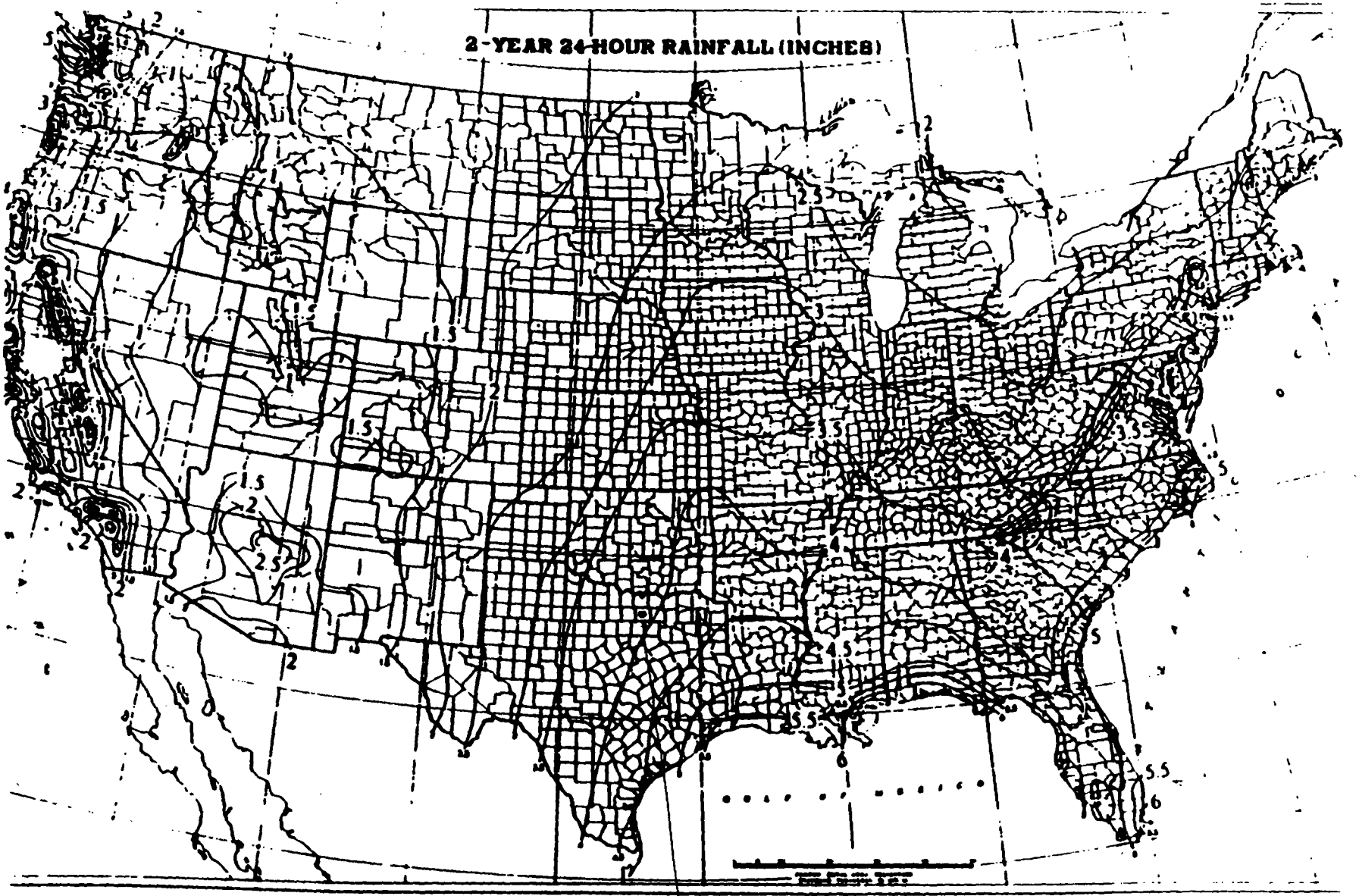
SUMMARY OF COMMUNICATION:

Water is purchased directly from the City of Dallas. Farmers Branch distributes the water to connection within the city boundaries. The City of Dallas receives its water supply from surface water reservoirs. There are no municipal water wells. There may be a few private water wells within the city boundaries, but he does not have specific information concerning their existence.

PA-SCORE

REFERENCE 13

Herschfield, D.M., 1961, Rainfall Frequency Atlas of the United States. U.S. Weather Bureau Technical Paper No. 40.


2-YEAR 24-HOUR RAINFALL (INCHES)
SITE

PA-SCORE

REFERENCE 14

TEXAS WATER COMMISSION
Permanent Rule Changes

Chapter 307

Texas Surface Water Quality Standards

§§307.2-307.10

Effective: July 10, 1991

1. Purpose. This change transmittal provide new adoptions to the Texas Water Commission Volume of Permanent Rules.

2. Explanation. The Texas Water Commission adopted the repeals of §§307.2-307.10 and new §§307.2-307.10, entitled "Texas Surface Water Quality Standards." New §§307.2-307.6, 307.8-307.10 were adopted with changes to the proposed text as published in the December 25, 1990, issue of the Texas Register (15 TexReg 7495). Section 307.7 was adopted without changes. Please replace the existing Chapter 307 with the attached Chapter 307. Also attached is a Chapter 307 index reflecting a new printing date and any new changes brought about by this adoption.

anaerobic condition that supports the growth and regeneration of hydrophytic vegetation. The term "hydrophytic vegetation" means a plant growing in: water or a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content. The term "wetland" does not include irrigated acreage used as farmland; a man-made wetland of less than one acre; or a man-made wetland not constructed with wetland creation as a stated objective, including but not limited to an impoundment made for the purpose of soil and water conservation which has been approved or requested by soil and water conservation districts.

(46) Zone of initial dilution - The small area at the immediate point of discharge where initial dilution with receiving waters occurs, and which may not meet certain criteria applicable to the receiving water. A zone of initial dilution is substantially smaller than a mixing zone.

(b) Abbreviations. The following abbreviations apply to this chapter:

(1) AP - aquifer protection.

(2) BMP - best management practices.

(3) AS - agricultural water supply.

(4) CFR - Code of Federal Regulations.

(5) CR - contact recreation.

(6) CPP - continuing planning process.

(7) DO - dissolved oxygen.

(8) E - exceptional quality aquatic habitat.

(9) EPA - U.S. Environmental Protection Agency.

(10) °F - degree(s) Fahrenheit.

(11) ft^3/s - cubic feet per second.

(12) H - high quality aquatic habitat.

(13) I - intermediate quality aquatic habitat.

(14) IS - industrial water supply.

(15) L - limited quality aquatic habitat.

(16) mg/l - milligrams per liter

(17) ml - milliliter.

(18) N - navigation.

(19) NCR - noncontact recreation.

(20) NPDES - National Pollutant Discharge Elimination system, as set out in the Clean Water Act, §402 (33 United States Code 1342).

(21) O - Oyster waters.

(22) PS - public water supply.

(23) 7Q2 - seven-day, two-year low flow.

(24) TDS - total dissolved solids.

(25) USFDA - U.S. Food and Drug Administration

(26) USGS - U.S. Geological Survey.

(27) WQM - water quality management.

§307.4. General Criteria.

(a) Application. The general criteria set forth in this section apply to surface water in the state and specifically apply to substances attributed to waste discharges or the activities of man. General criteria do not apply to those instances in which surface water, as a result of natural phenomena, exhibit characteristics beyond the limits established by this section. General criteria are superseded by specific exemptions stated in this section or in §307.8 of this title (relating to the Application of Standards), or by site-specific water quality standards for classified segments. Provisions of the general criteria remain in effect in mixing zones or below critical low-flow conditions unless specifically exempted in §307.8 of this title (relating to the Application of Standards).

TRINITY RIVER BASIN		USES				CRITERIA						
SEGMENT NUMBER	SEGMENT NAME	RECREATION	AQUATIC LIFE	DOMESTIC WATER SUPPLY	OTHER	CHLORIDE (mg/L) Annual average not to exceed	SULFATE (mg/L) Annual average not to exceed	TOTAL DISSOLVED SOLIDS (mg/L) Annual average not to exceed	DISSOLVED OXYGEN (mg/L)	pH RANGE	FECAL COLIFORM (#/100 mL) Thirty-day geometric mean not to exceed	TEMPERATURE (°F) Not to exceed
0801	Trinity River Tidal	CR	H						4.0	6.5-9.0	200	95
0802	Trinity River Below Lake Livingston	CR	H	PS		125	100	600	5.0	6.5-9.0	200	93
0803	Lake Livingston	CR	H	PS		150	50	500	5.0	6.5-9.0	200	93
0804	Trinity River Above Lake Livingston	CR	H			150	150	600	5.0	6.5-9.0	200	93
0805	Upper Trinity River	CR	H			175	175	850	5.0*	6.5-9.0	200	95
0806	West Fork Trinity River Below Lake Worth	CR	H	PS		100	100	500	5.0	6.5-9.0	200	93
0807	Lake Worth	CR	H	PS		100	100	500	5.0	6.5-9.0	200	91
0808	West Fork Trinity River Below Eagle Mountain Reservoir	CR	H	PS		100	100	500	5.0	6.5-9.0	200	91
0809	Eagle Mountain Reservoir	CR	H	PS		75	75	300	5.0	6.5-9.0	200	94
0810	West Fork Trinity River Below Bridgeport Reservoir	CR	H	PS		100	100	500	5.0	6.5-9.0	200	90
0811	Bridgeport Reservoir	CR	H	PS		75	75	300	5.0	6.5-9.0	200	90
0812	West Fork Trinity River Above Bridgeport Reservoir	CR	H	PS		100	100	500	5.0	6.5-9.0	200	88
0813	Houston County Lake	CR	H	PS		75	75	300	5.0	6.5-9.0	200	93
0814	Chambers Creek Above Richland-Chambers Reservoir	CR	H	PS		90	160	500	5.0	6.5-9.0	200	90
0815	Bardwell Reservoir	CR	H	PS		50	50	300	5.0	6.5-9.0	200	91
0816	Lake Waxahachie	CR	H	PS		50	50	300	5.0	6.5-9.0	200	91
0817	Navarro Mills Lake	CR	H	PS		50	75	300	5.0	6.5-9.0	200	90
0818	Cedar Creek Reservoir	CR	H	PS		50	50	200	5.0	6.0-8.5	200	91
0819	East Fork Trinity River	CR	I			75	50	400	4.0	6.5-9.0	200	91
0820	Lake Ray Hubbard	CR	H	PS		40	50	400	5.0	6.5-9.0	200	90

* dissolved oxygen criterion in Segment 0805 shall be 3.5 mg/L when headwater flow at USGS Gaging Station 08048000 (Trinity River in Fort Worth) is less than 80 ft³/s.

TRINITY RIVER BASIN		USES				CRITERIA						
SEGMENT NUMBER	SEGMENT NAME	RECREATION	AQUATIC LIFE	DOMESTIC WATER SUPPLY	OTHER	CHLORIDE (mg/L) Annual average not to exceed	SULFATE (mg/L) Annual average not to exceed	TOTAL DISSOLVED SOLIDS (mg/L) Annual average not to exceed	DISSOLVED OXYGEN (mg/L)	pH RANGE	FECAL COLIFORM (#/100 mL) Thirty-day geometric mean not to exceed	TEMPERATURE (°F) Not to exceed
0821	Lavon Lake	CR	H	PS		80	60	400	5.0	6.5-9.0	200	93
0822	Elm Fork Trinity River Below Lewisville Lake	CR	H	PS		80	60	500	5.0	6.5-9.0	200	90
0823	Lewisville Lake	CR	H	PS		80	60	500	5.0	6.5-9.0	200	90
0824	Elm Fork Trinity River Above Ray Roberts Lake	CR	H	PS		110	90	700	5.0	6.5-9.0	200	90
0825	Denton Creek	CR	H	PS		80	60	500	5.0	6.5-9.0	200	90
0826	Grapevine Lake	CR	H	PS		80	60	500	5.0	6.5-9.0	200	93
0827	White Rock Lake	CR	H			100	100	400	5.0	6.5-9.0	200	93
0828	Lake Arlington	CR	H	PS		100	100	300	5.0	6.5-9.0	200	95
0829	Clear Fork Trinity River Below Benbrook Lake	CR	H	PS		100	100	500	5.0	6.5-9.0	200	93
0830	Benbrook Lake	CR	H	PS		75	75	300	5.0	6.5-9.0	200	93
0831	Clear Fork Trinity River Below Lake Weatherford	CR	H	PS		100	100	500	5.0	6.5-9.0	200	90
0832	Lake Weatherford	CR	H	PS		100	100	500	5.0	6.5-9.0	200	93
0833	Clear Fork Trinity River Above Lake Weatherford	CR	H	PS		125	125	750	5.0	6.5-9.0	200	95
0834	Lake Amon G. Carter	CR	H	PS		150	150	400	5.0	6.5-9.0	200	93
0835	Richland Creek Below Richland-Chambers Reservoir	CR	H	PS		145	170	500	5.0	6.5-9.0	200	90
0836	Richland-Chambers Reservoir	CR	H	PS		75	110	400	5.0	6.5-9.0	200	91
0837	Richland Creek Above Richland-Chambers Reservoir	CR	H	PS		145	170	500	5.0	6.5-9.0	200	90
0838	Joe Pool Lake	CR	H	PS		100	100	300	5.0	6.5-9.0	200	90
0839	Elm Fork Trinity River Below Ray Roberts Lake	CR	H	PS		80	60	500	5.0	6.5-9.0	200	90
0840	Ray Roberts Lake	CR	H	PS		80	60	500	5.0	6.5-9.0	200	90

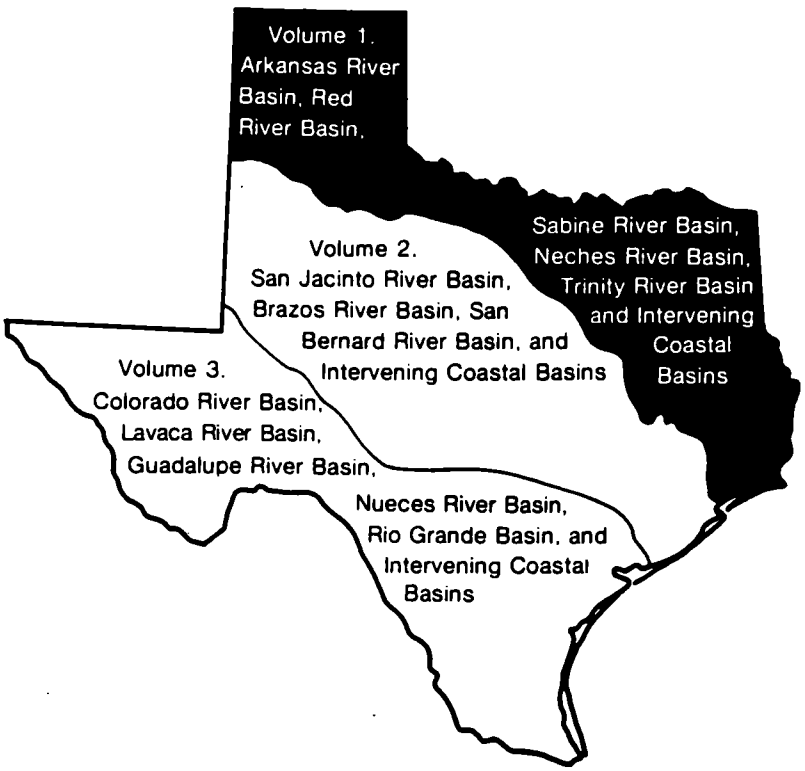
PA-SCORE

REFERENCE 15

Water Resources Data Texas

Water Year 1989

Volume 1. Arkansas River Basin, Red River Basin, Sabine River Basin, Neches River Basin, Trinity River Basin and Intervening Coastal Basins



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-89-1
Prepared in cooperation with the State of Texas
and with other agencies

CONTENTS

ILLUSTRATION

08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, Hydrologic Unit 12030103, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft upstream from Carrollton Dam, 0.3 mi downstream from Denton Creek, 1.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi northwest of Carrollton, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,459 mi².

PERIOD OF RECORD.--January 1907 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to November 1923, published as "near Dallas".

REVISED RECORDS.--WSP 788: 1924. WSP 1148: Drainage area at former site. WSP 1632: 1908(M). WSP 1922: Drainage area.

GAGE (revised).--Water-stage recorder and concrete control. Datum of gage is 431.40 ft National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi downstream at datum 22.94 ft lower. Oct. 1, 1955, to Sept. 30, 1987, water-stage recorder at present site and at datum 2.00 ft higher.

REMARKS.--No estimated daily discharge. Records good. Flow is largely regulated by Lewisville Lake (station 08052800) since November 1954, and by Grapevine Lake (station 08054500) since July 1952. The city of Dallas diverts water from the pool at gage and from the river 14 mi downstream for municipal use. A water treatment plant returns water to the river below this station. In addition, Dallas Power and Light Co. diverts water from pool at gage into North Lake for cooling water at their electric generating plant. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--47 years (water years 1908-54) prior to regulation by Lewisville and Grapevine Lakes, 818 ft³/s (592,600 acre-ft/yr); 35 years (water years 1955-89) regulated, unadjusted, 744 ft³/s (539,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (revised).--Maximum gage height, about 19 ft May 25, 1908, present site and datum, from information by local resident; estimated discharge, 145,000 ft³/s, at site 8.5 mi downstream (from information by U.S. Army Corps of Engineers); maximum gage height subsequent to 1908, 16.5 ft Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi downstream, 90,700 ft³/s; no flow at times. Flood in 1866 reached about the same stage as flood of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,720 ft³/s May 17 at 0900 hours (gage height, 9.73 ft); no flow Dec. 3-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	105	77	3.6	189	271	330	125	1380	6730	5290	118
2	67	96	172	7.8	69	270	299	124	1840	6850	5310	125
3	43	92	40	3.8	50	274	275	419	2650	7220	5320	190
4	36	96	.00	4.2	25	290	626	161	4500	4570	5250	140
5	41	166	29	24	26	293	1300	878	1310	5210	5140	171
6	48	142	36	40	45	301	1590	142	195	6290	4760	258
7	84	128	79	31	34	307	1600	184	5090	6610	4450	197
8	88	119	44	54	27	296	1620	145	3970	6750	4030	151
9	98	104	99	66	29	289	1640	149	482	6750	3640	195
10	90	78	59	34	18	280	1630	124	184	6730	3600	86
11	64	77	64	62	35	277	1570	92	323	6730	3280	432
12	101	100	17	118	62	268	1260	85	1570	6680	2420	149
13	107	85	24	41	71	267	1100	122	3800	6640	2100	762
14	68	87	32	37	46	266	989	135	5030	6660	1950	183
15	41	100	16	35	261	222	729	141	5480	6740	1680	217
16	71	50	18	32	593	166	687	1320	4980	6680	1670	164
17	93	64	19	28	2500	140	645	7380	3850	6640	1870	123
18	108	79	20	32	828	139	333	1330	2950	6600	1790	127
19	129	136	17	43	95	154	210	159	2320	6580	1750	165
20	61	49	21	93	47	184	122	39	1750	6560	1720	89
21	56	37	14	119	45	513	112	159	1350	6540	1640	133
22	95	81	21	196	47	428	107	115	1060	6350	1470	133
23	126	86	11	204	115	368	112	75	1140	6080	1400	155
24	191	81	7.1	210	142	188	149	87	2350	6020	1380	135
25	225	82	11	499	259	141	149	100	3720	5700	1340	119
26	209	103	7.9	722	272	149	116	75	4030	5570	1220	99
27	169	94	46	94	275	172	85	130	5420	5350	1160	102
28	156	86	21	1300	272	3780	95	366	5910	5250	1160	54
29	134	85	6.0	440	---	908	116	344	6380	5280	1140	117
30	112	80	8.2	87	---	98	107	423	6570	5300	722	202
31	120	---	5.3	240	---	300	---	906	---	5270	209	---
TOTAL	3076	2768	1041.50	4900.4	6477	11999	19703	16034	91584	192930	79861	5291
MEAN	99.2	92.3	33.6	158	231	387	657	517	3053	6224	2576	176
MAX	225	166	172	1300	2500	3780	1640	7380	6570	7220	5320	762
MIN	36	37	.00	3.6	18	98	85	39	184	4570	209	54
AC-FT	6100	5490	2070	9720	12850	23800	39080	31800	181700	382700	158400	10490

CAL YR 1988 TOTAL 41418.50 MEAN 113 MAX 801 MIN .00 AC-FT 82150
WTR YR 1989 TOTAL 435664.90 MEAN 1194 MAX 7380 MIN .00 AC-FT 864100

08057000 TRINITY RIVER AT DALLAS, TX

LOCATION.--Lat 32°46'29", long 96°49'18", Dallas County, Hydrologic Unit 12030105, on right bank (levee) 90 ft downstream from Commerce Street viaduct in Dallas, 5.2 mi downstream from confluence of West and Elm Forks, and at mile 500.3.

DRAINAGE AREA.--6,106 mi².

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year.

REVISED RECORDS.--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WDR TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi upstream at different datum. July 1, 1903, to July 20, 1930, non-recording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi downstream at datum 3.08 ft lower.

REMARKS.--No estimated daily discharges. Records good. At times, flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,000 acre-ft, of which 846,200 acre-ft is for flood control. The city of Dallas diverts water for municipal use from Elm Fork, Lake Ray Hubbard (on the East Fork), and Lake Tawakoni (on the Sabine River), and purchases water from North Texas Municipal Water District (from the East Fork). Sewage effluent is returned to the river downstream from this station. The Trinity River Authority discharges sewage effluent into the river upstream from the station. For additional information on diversions and effluent returns upstream from this station, see stations 08048000, 08049200, and 08049500. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--86 years, 1,553 ft³/s (1,125,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 184,000 ft³/s May 25, 1908 (gage height, 52.6 ft), from rating curve extended above 109,000 ft³/s; minimum observed for periods 1903-6, 1920-75, 1.2 ft³/s July 4, 1953, result of storage behind temporary dam 4 mi upstream.
Maximum stage since at least 1840, that of May 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866 reached about the same stage as that of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 58,700 ft³/s May 17 at 1930 hours (gage height, 43.31 ft); minimum daily, 318 ft³/s Dec. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1650	469	320	409	655	643	3650	1130	4540	11300	4900	521
2	1120	426	318	375	860	615	1930	1060	5650	11700	5000	470
3	639	395	347	370	1820	618	1280	4000	8150	14800	5410	468
4	486	390	320	356	830	666	1080	6370	10900	13600	5120	459
5	441	383	332	346	551	789	1480	16400	14400	10300	4920	469
6	428	375	331	344	487	1030	1810	16900	12000	10000	5270	469
7	413	375	371	329	638	1220	2000	13700	13500	10900	6390	487
8	417	375	504	325	805	1030	2040	9160	22800	11500	6700	491
9	423	370	487	323	466	999	1990	4850	21100	12100	4630	487
10	407	360	844	326	453	837	1980	2910	16500	11800	3790	497
11	400	364	1770	328	437	687	1960	2430	14800	11000	3560	1490
12	392	540	1060	423	491	650	1810	2160	16800	10200	3200	2530
13	388	495	492	680	638	641	2080	2310	26200	9850	2620	2970
14	376	409	406	613	558	636	6390	2510	42100	8660	2370	3840
15	377	581	383	449	873	630	4030	2230	37800	9280	2210	1180
16	373	826	350	376	3180	581	1920	6220	29800	8170	2130	629
17	381	461	336	359	7990	567	1470	37500	26000	7580	2850	552
18	379	398	338	344	13600	523	1220	43000	22600	7370	4470	477
19	373	811	341	338	6750	515	922	28100	19300	7080	2530	458
20	372	1210	350	340	2850	533	799	21000	16800	6890	2170	408
21	366	491	336	334	1600	1050	783	18100	15000	7030	2050	409
22	362	354	569	344	1490	1380	750	15900	13100	6570	1950	395
23	366	348	755	358	1620	938	734	12900	10900	6320	1760	357
24	365	340	554	371	1390	802	717	10800	9120	6060	1690	377
25	366	365	374	472	954	654	707	9760	7840	5850	1640	373
26	401	452	333	4140	846	633	707	9140	6930	5710	1570	369
27	595	412	542	2410	753	631	694	8700	7390	5610	1450	356
28	615	348	1290	3580	715	7540	667	7910	9390	5360	1400	354
29	709	340	822	7630	---	16300	1000	5920	9720	5070	1400	359
30	690	325	427	2950	---	14000	1020	4220	10900	4940	1270	358
31	525	---	429	1300	---	7650	---	3870	---	4900	786	---
TOTAL	15595	13788	16431	31642	54300	65988	49620	331160	482030	267500	97206	23059
MEAN	503	460	530	1021	1939	2129	1654	10680	16070	8629	3136	769
MAX	1650	1210	1770	7630	13600	16300	6390	43000	42100	14800	6700	3840
MIN	362	325	318	323	437	515	667	1060	4540	4900	786	354
AC-FT	30930	27350	32590	62760	107700	130900	98420	656900	956100	530600	192800	45740

CAL YR 1988 TOTAL 199911 MEAN 546 MAX 7120 MIN 277 AC-FT 396500
WTR YR 1989 TOTAL 1448319 MEAN 3968 MAX 43000 MIN 318 AC-FT 2873000

PA-SCORE

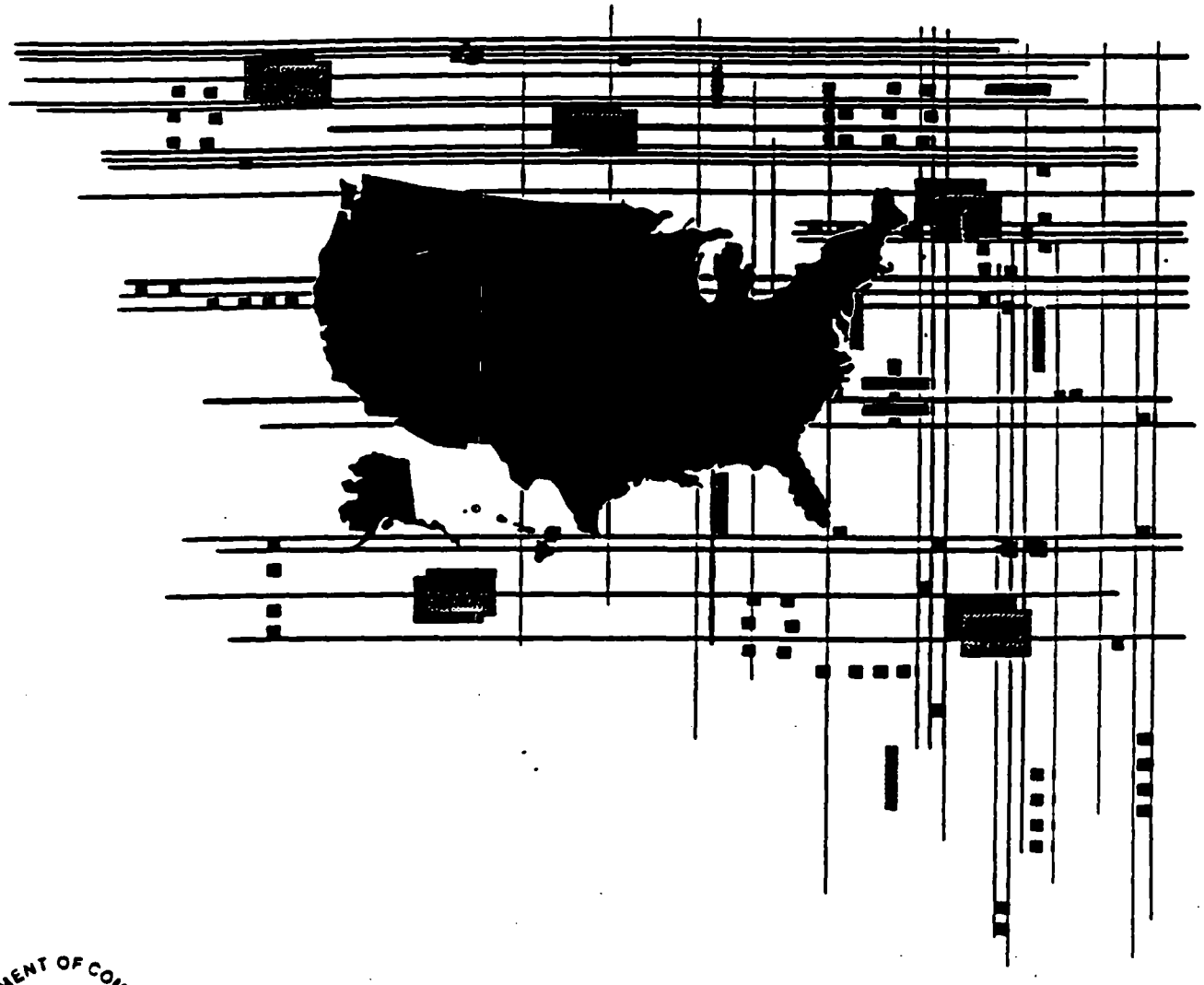
REFERENCE 16

CURRENT POPULATION REPORTS

Special Studies

Series P-23, No. 156

Estimates of Households, for Counties: July 1,1985



U.S. Department of Commerce
BUREAU OF THE CENSUS

Table 1. Estimates of Households, for Counties: July 1, 1985—Continued

(A dash (-) represents zero or rounds to zero. Estimates are consistent with special censuses since 1980. Corrections to 1980 census counts are not included. See text concerning rounding and average population per household)

State and county	Households				Average population per household		Population			
	July 1, 1985 (estimate)	April 1, 1980 (census)	Change, 1980-85		July 1, 1985 (estimate)	April 1, 1980 (census)	July 1, 1985 (estimate)	April 1, 1980 (census)	Change, 1980-85	
			Number	Percent					Number	Percent
Texas—Continued										
Bastrop	12,200	8,719	3,500	39.8	2.75	2.78	34,300	24,726	9,600	38.8
Baylor	2,100	2,027	-	2.4	2.25	2.39	4,700	4,919	-200	-3.7
Bee	8,700	8,181	500	6.0	3.00	3.06	26,900	26,030	800	3.2
Bell	63,700	52,661	11,100	21.0	2.59	2.79	174,900	157,889	17,000	10.8
Bexar	378,300	320,639	57,600	18.0	2.92	2.98	1,139,100	988,800	150,300	15.2
Blanco	2,200	1,825	400	20.0	2.53	2.52	5,600	4,681	1,000	20.6
Borden	300	299	-	-1.3	2.97	2.87	900	859	-	2.0
Bosque	5,900	5,513	400	6.7	2.34	2.36	14,100	13,401	700	5.5
Bowie	30,200	27,449	2,700	9.9	2.63	2.70	80,500	75,301	5,200	6.9
Brazoria	59,900	53,907	6,000	11.1	2.99	3.00	187,200	169,587	17,600	10.4
Brazos	43,300	32,488	10,800	33.2	2.57	2.60	121,500	93,588	27,900	29.8
Brewster	2,900	2,694	200	5.8	2.60	2.63	7,900	7,573	400	4.7
Briscoe	900	967	-100	-9.0	2.59	2.67	2,300	2,579	-300	-11.7
Brooks	2,900	2,614	300	10.3	3.16	3.20	9,200	8,428	800	8.9
Brown	13,100	12,308	800	6.3	2.54	2.56	34,500	33,057	1,500	4.6
Burleson	5,300	4,469	800	18.0	2.79	2.73	14,800	12,313	2,500	20.6
Burnet	8,800	6,951	1,900	26.7	2.57	2.53	22,900	17,803	5,100	28.5
Caldwell	9,000	7,361	1,700	22.4	2.73	2.85	27,800	23,637	4,200	17.8
Calhoun	7,500	6,469	1,000	15.7	2.86	3.01	21,600	19,574	2,000	10.2
Callahan	4,800	4,150	600	15.6	2.57	2.61	12,500	10,992	1,500	13.7
Cameron	73,900	58,418	15,500	26.6	3.37	3.56	252,000	209,727	42,300	20.2
Camp	3,700	3,404	300	8.7	2.68	2.70	10,000	9,275	700	7.9
Carson	2,500	2,395	100	2.9	2.72	2.73	6,800	6,672	200	2.5
Cass	10,900	10,515	400	4.0	2.75	2.76	30,500	29,430	1,100	3.6
Castro	3,100	3,136	-100	-2.6	3.36	3.34	10,300	10,556	-200	-2.1
Chambers	6,600	6,248	400	5.8	2.96	2.96	19,600	18,538	1,100	5.9
Cherokee	14,500	13,627	900	6.4	2.63	2.67	39,700	38,127	1,500	4.0
Childress	2,600	2,776	-200	-6.4	2.44	2.46	6,500	6,950	-500	-7.1
Clay	3,700	3,607	-	1.3	2.62	2.62	9,700	9,582	100	1.0
Cochran	1,400	1,515	-100	-4.4	3.22	3.12	4,800	4,825	-100	-1.3
Coke	1,400	1,257	200	12.2	2.42	2.47	3,500	3,196	300	9.9
Coleman	4,300	4,243	100	2.5	2.35	2.41	10,400	10,439	-	-0.2
Collin	65,000	46,373	18,600	40.2	2.98	3.08	195,900	144,576	51,300	35.5
Collingsworth	1,600	1,790	-200	-13.4	2.54	2.56	4,000	4,648	-700	-14.0
Colorado	7,300	6,938	400	5.4	2.71	2.67	20,200	18,823	1,300	7.2
Comal	16,800	12,958	3,800	29.5	2.74	2.77	46,600	36,446	10,100	27.8
Comanche	5,200	4,973	200	4.2	2.44	2.46	12,900	12,617	300	2.3
Concho	1,000	1,091	-100	-5.9	2.70	2.64	2,800	2,915	-100	-3.7
Cooke	10,500	10,078	500	4.7	2.70	2.68	29,100	27,656	1,500	5.3
Coryell	14,800	14,090	700	5.1	3.04	3.06	59,300	56,767	2,500	4.5
Cottle	1,000	1,164	-100	-12.8	2.57	2.49	2,700	2,947	-300	-9.9
Crane	1,700	1,582	100	9.2	2.90	2.95	4,900	4,600	300	7.6
Crockett	1,600	1,558	100	5.3	2.83	2.93	4,700	4,608	100	1.7
Crosby	2,900	2,920	-	-0.3	2.84	3.00	8,400	8,859	-500	-5.7
Culberson	1,100	987	100	9.5	3.11	3.35	3,400	3,315	100	1.7
Dallam	2,400	2,386	-	1.8	2.73	2.74	6,600	6,531	100	1.7
Dallas	689,600	577,701	111,900	19.4	2.57	2.66	1,794,000	1,556,390	237,600	15.3
Dawson	5,700	5,483	300	4.8	2.81	2.93	16,300	16,184	100	0.5
Deaf Smith	6,300	6,487	-200	-3.2	3.18	3.24	20,100	21,165	-1,100	-5.1
Delta	1,900	1,932	-	-1.8	2.44	2.46	4,700	4,839	-100	-2.2
Denton	66,700	49,134	17,500	35.7	2.72	2.77	188,700	143,126	45,600	31.8
De Witt	7,400	7,056	300	4.7	2.65	2.61	20,000	18,903	1,100	5.9
Dickens	1,200	1,369	-200	-15.2	2.65	2.56	3,100	3,539	-400	-12.5
Dimmit	3,400	3,135	200	6.9	3.47	3.58	11,800	11,367	400	3.5
Donley	1,600	1,608	-	-2.6	2.45	2.43	4,000	4,075	-	-1.1

PA-SCORE

REFERENCE 17

MEMORANDUM

Reference 17

TO: File

FROM: S. Bret Kendrick, Task Manager

DATE: February 4, 1993

RE: Measurements and Calculations for GNB

The following measurements were calculated directly from U.S.G.S. 7.5-Minute topographic series maps.

15-Mile In-Water Segment

Rawhide Creek is approximately 3,000 feet south-southeast of the site (PPE).

Rawhide Creek flows approximately 1.57 miles from the PPE before entering the Elm Fork of the Trinity River.

The Elm Fork of the Trinity River flows approximately 11.24 miles from Rawhide Creek before entering the Trinity River.

The remaining 15-mile in-water segment is contained within the Trinity River.

Identified Features on the Topographic Maps within Defined Radii

0 - ¼ Mile Radius
2 houses

¼ - ½ Mile Radius
13 houses

½ - 1 Mile Radius
37 houses

1 - 2 Mile Radius
3 schools
1 park

2 - 3 Mile Radius
4 schools
2 parks

3 - 4 Mile Radius
2 schools
1 country club

Calculations for Populations

Populations wihtin 1 mile of the site were calculated by conducting a house count and multiplying the number of houses by the average population per household for Dallas County. The average population per household for Dallas County is 2.57 (Ref. 16).

0 - ¼ Mile Radius

2 houses x 2.57 persons/household = 5.14 persons

¼ - ½ Mile Radius

13 houses x 2.57 persons/household = 33.41 persons

½ - 1 Mile Radius

37 houses x 2.57 persons/household = 95.09 persons

PA-SCORE

REFERENCE 18

STATE	CITY NAME	FIPSCODE	LATITUDE	LONGITUDE
TX	DALLAS	48113	32.9317	96.8750

Press RETURN key to continue ...

CENSUS DATA

GNB Inc.
LATITUDE 32:55:12 LONGITUDE 96:54:58 1990 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	79	9404	29788	28342	67613
RING TOTALS	0	0	79	9404	29788	28342	67613

Press RETURN key to continue ...
Esc for ATtention, Home to SWitch ‖ Capture Off ‖ On: 00:07:41

PA-SCORE

REFERENCE 19

RECORD OF COMMUNICATION

Reference 19

TYPE: Telephone Call **DATE:** 2/4/93 **TIME:** 1115

TO: Agetha Benjeman, RCRA Enforcement, EPA (214) 655-6745

FROM: B. Kendrick, Geologist, ICF Technology, Inc. (214) 979-3905

SUBJECT: Current Regulatory Status of GNB

SUMMARY OF COMMUNICATION:

A Consent Decree was signed on January 31, 1993 for the installation of additional monitoring wells in an effort to receive a certified clean closure of the surface impoundments.

PA-SCORE

REFERENCE 20

MEMORANDUM

Reference 20

TO: File

FROM: S. Bret Kendrick, Task Manager

DATE: February 4, 1993

RE: On-Site Reconnaissance Inspection of GNB, Inc.

The on-site reconnaissance inspection was conducted on January 14, 1992. The MK/ICF team consisted of Alex Zocchi, Team Leader and Brad Cune, Site Safety Officer. The team met with Mr. Bill Backus and Mr. Richard Thompson of GNB. The team made a visual inspection of the closed impoundments. The impoundments appeared to have been inactive for a long period of time and they were highly vegetated. Also noted during the inspection were two monitoring wells. The team received from site representatives sampling results collected by the Texas Water Commission from monitoring wells in March, 1990.

The above information was taken directly from the log book entries made by Mr. Alex Zocchi.

PA-SCORE

REFERENCE 21

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

January 8, 1982

TXD007331879
Gould Inc
Attn: Everett Milton
P.O. Box 43140
St, Paul MN 55164

1880 Valley View Lane
Farmers Branch, Texas

The RCRA permit application submitted on the above facility was returned to you a few weeks ago with a request for clarification of information, and to date we have received no response. In order to continue the processing of your application, we must receive the following information:

Process Information: T02 can only be in gallons per day or liters per day
Waste Information: Please explain page 3 of 5 T23, T44, and D85

To prevent further delay in processing, please provide this information to us within ten days of the date ofthis letter. Return the information to:

EPA - 6EP
RCRA Activities
1201 Elm Street
Dallas, Texas 75270

Should you have questions, please contact Mr. Dwight Corley at (214) 767-2765, or at the above address.

Thanks very much for your cooperation.

Sincerely,

Fred B. Woods

Fred B. Woods, Chief
Administrative Branch

cc: File/Referenced Facility

Part A, Permit Process --- Internal Checklist

ID Number TXD007331879 Inst Name Gould Inc.

PHASE ONE

Refer to Form No:	Interim Regulatory Requirements	Indicate by your initials: Yes	No	Valid Prmlg Date?
1	T/S/D Facility? (If No, return to respondent.)	MM		
3	Form 1 received?	MM		
1	Form 3 received?	MM		
1 & 3	Postmarked on or before November 19, 1980?	MM		
3	Date of operation entered?	MM		
3	Date of operation on or before November 19, 1980?	MM		
Notif. record	Notifier?	MM		
"	Notified on or before August 18, 1980?	MM		
1	Form 1, XIII B signed?	MM		
3	Form 3, IX B Signed?	MM		

(If all ten items above are initialed in the Yes column, generate Interim Status Acknowledgement and indicate the trigger date here: _____)

PHASE TWO

1	Unsure if regulated or non-regulated?			GT
3	New facility?			GT
1 & 3	Core items missing? If Yes, indicate which items:			

Facility name___; location___; mail address___; operator info___;

certification___; process info___; waste info X; owner___; sigs___.

PHASE THREE

1 & 3 Non-core items missing? If Yes, indicate which items:

Maps___; photos___; drawings___; lat/long___.

Other observations and comments:

Received Date Stamp

80/11/19

(Stamp forms also)

Log out/Log in on reverse side.

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F TXD007331879

LABEL ITEMS

EPA I.D. NUMBER TXD007331879

III. FACILITY NAME GOULD INC

V. FACILITY MAILING ADDRESS 1880 VALLEY VIEW LANE
DALLAS TX 75234

VI. FACILITY LOCATION 1880 VALLEY VIEW LANE
DALLAS TX 75234

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP GOULD INC

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 MILTON EVERETT FACILITY ENGR	612 681 5000

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 PO BOX 43140

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 ST PAUL	MN	55164

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 1880 VALLEY VIEW LANE

B. COUNTY NAME

DALLAS

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 FARMERS BRANCH	TX	75234	

RECEIVED
NOV 19 1980

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

EPA I.D. NUMBER: TXD007331879 174

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
7 3691 (specify) Batteries, Storage	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME

8 GOULD INC

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO (66)

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.)

A 612 681 5000

E. STREET OR P.O. BOX

PO BOX 43140

F. CITY OR TOWN	G. STATE	H. ZIP CODE
B ST PAUL	MN	55164

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO (82)

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N	9 P
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**
9 U	9 (specify)
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
9	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Manufacture of Lead Acid Automotive Storage Batteries

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Vice President, General Manager	C. E. Boden	11/18/80

COMMENTS FOR OFFICIAL USE ONLY

Form 3510-1 (6-80) REVERSE

(12 characters/inch)

Form Approved OMB No. 158-S80004

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

EPA

I. EPA I.D. NUMBER

15	T	X	D	0	0	7	3	3	1	8	7	9

OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)

COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[ ] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

[ ] 2. NEW FACILITY *(Complete item below.)*

	YR.	MO.	DAY
8	7 0	0 1	0 2

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

YR.	MO.	DAY

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR, GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G	
X-2	T 0 3	20	E	
1	T 0 1	150,000	U	
2	T 0 2	3,500,000	G	
3	S 0 4	Included above		
4	S 0 3	4,500	Y	
5	S 0 3	6,700	Y	
6	T 0 4	100,000	U	
7				
8				
9				
10				

PROCESS CODES OR DESCRIBING OTHER PROCESSES (code "T01"). FOR EACH PROCESS ENTERED HERE

portable chemical fixation process, erected and operated on site periodically as required by the accumulated volume of process sludge.

Chemical fixation is used to treat process sludge to prepare it for ultimate disposal.

The chemical fixation process has a design capacity of approximately 100,000 gallons per day.

V. DESCRIPTION OF HAZARDOUS WASTES

. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste*(s)* that will be handled which possess that characteristic or contaminant.

. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

OTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by ore than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

XAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds r year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes e corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 0 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

...(enter from page 1) 0 0 7 3 3 1 8 7 9 | F/A | C 1

FOR OFFICIAL USE ON | W | DUP | F/A | C 2 | DUP

DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D008	300	T	T23 T44 S04 D85	See Note 1
2	D006				Included with above
3	D004				Included with above
4	D002				Included with above
5					
6	D002	105,300	T	T23 D85	See Note 2
7					
8		13,000 (see note 3) (one time only)	T		See Note 3
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Note 1: Material is contained in process sludge. At periodic intervals (as noted in Section III.C), sludge is processed using chemical fixation. Resultant sludge is not a hazardous waste and can be disposed of as landfill.

Note 2: Liquid effluent from treatment is disposed of by POTW.

Note 3: This material is listed for reference only, since it was in original submission. Subsequent qualification tests have determined material is not a hazardous waste. Material is chemically fixed process sludge from previous operating periods. Material can be disposed of as landfill.

...DOUS WASTES (continued)

...ST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. (enter from page 1)

	T	X	D	0	0	7	3	3	1	8	7	9		6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground-level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*. See original submission

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
32 55 01 2	096 54 05 8

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
	G		

IX. OWNER CERTIFICATION

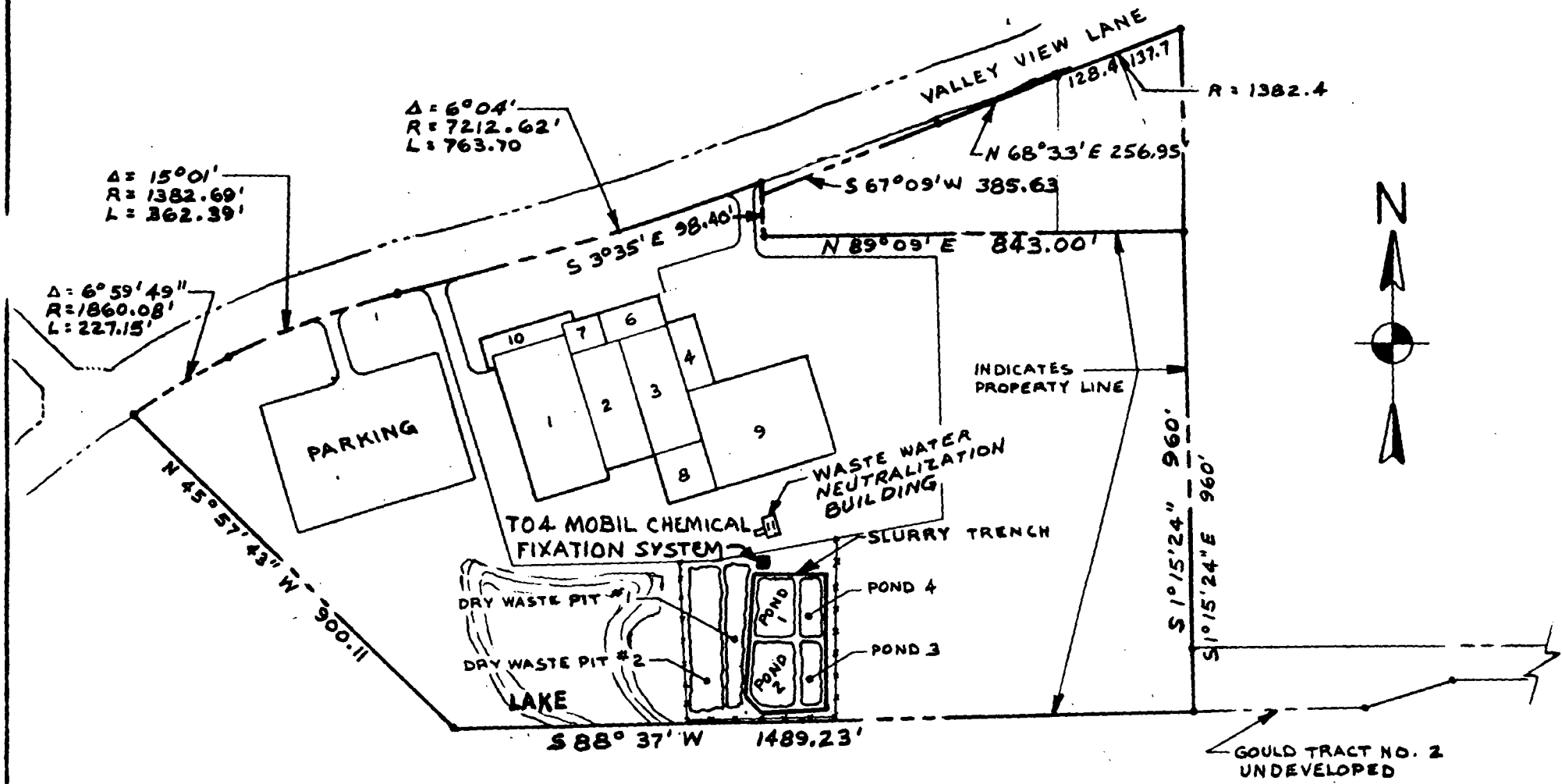
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Vice President, Operations		5/11/81

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED



SCALE: 1" = 300'

ISSUE	DATE	REVISION
A	5/12/81	ADDED TO4 FIXATION SYS

TITLE

PLOT PLAN
DALLAS, TEXAS

GOULD HAS PROPRIETARY RIGHTS IN THIS MATERIAL

TOLERANCE UNLESS OTHERWISE SPECIFIED .00± .000± FRACTIONS ±

GOULD AUTOMOTIVE BATTERY DIVISION
ST. PAUL, MINNESOTA

DR. OC. CH.

DATE 10-27-80

PART NO.

DRAWING NO. 874 A-125 A